Issued November 15, 1911.

U. S. DEPARTMENT OF AGRICULTURE.

Report No. 94.

INFLUENCE OF SACCHARIN
ON THE NUTRITION AND HEALTH OF MAN.

REPORT OF THE REFEREE BOARD OF CONSULTING SCIENTIFIC EXPERTS.

INFLUENCE OF SACCHARIN ON DIGESTION, METABOLISM, NUTRITION, AND GENERAL HEALTH. By CHRISTIAN A. HERTER.

EFFECT OF SACCHARIN ON THE HEALTH, NUTRITION, AND GENERAL METABOLISM OF MAN. By OTTO FOLIN.

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LETTER OF SUBMITTAL.

United States Department of Agriculture,
Office of Consulting Scientific Experts,
Baltimore, Md., March 6, 1911.

Sir: I have the honor to submit herewith a report of the investigations carried out under the direction of this board on the "Influence of Saccharin on the Nutrition and Health of Man."

Respectfully,

Ira Remsen,
Chairman, Referee Board Consulting Scientific Experts.

Hon. James Wilson,
Secretary of Agriculture.

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REPORT OF THE REFEREE BOARD OF CONSULTING SCIENTIFIC EXPERTS.

IRA REMSEN, *Chairman.*
RUSSELL H. CHITTENDEN, JOHN H. LONG,
CHRISTIAN A. HERTER,
ALONZO E. TAYLOR.

REPORT OF THE REFEREE BOARD OF CONSULTING SCIENTIFIC EXPERTS.

The questions certified to the referee board of consulting scientific experts by the Secretary of Agriculture bearing on saccharin are as follows:

(1) "Does a food to which there has been added saccharin contain any added poisonous or other added deleterious ingredient which may render the said food injurious to health (*a*) in large quantities; (*b*) in small quantities?"

(2) "If saccharin be mixed or packed with a food, is the quality or strength of said food thereby reduced, lowered, or injuriously affected (*a*) in large quantities; (*b*) in small quantities?"

To obtain satisfactory answers to these questions, the board has found it necessary to institute experimental investigations on the effect of saccharin and its sodium salt on the nutrition and general health of man.

The experimental work, on the results of which the conclusions of the board are based, was conducted by Prof. Christian A. Herter, of Columbia University, New York City, in collaboration with a number of competent physiological chemists and clinicians, and by Prof. Otto Folin, of Harvard University, aided by clinical and other assistants.

The subjects made use of in all the experiments were men in normal health, and the doses of saccharin administered were adequate to cover any practical use of the substance for sweetening purposes.

In fixing upon the amounts of saccharin that should constitute a "small dose" and a "large dose," we have kept in mind the fact that the sweetening power of saccharin is approximately equal to 500 times its weight of cane sugar. The "small dose" adopted was up to 0.3 gram per day, while the "large dose" ranged from 0.75 gram to 1.5 grams daily. This would mean that the amounts of saccharin taken daily by the individual subjects corresponded in sweetening power to from 150 to 750 grams of cane sugar per day, or, approximately, from 5 ounces to 1½ pounds. In one of the experiments the subjects, seven in number, took saccharin almost uninterruptedly with every meal for a period of about five months, the doses ranging from 0.15 gram per day at the beginning to 0.75 gram per day at the end.

The conclusions reached as a result of the individual investigations are given in detail in the separate reports herewith presented, together with all of the data upon which these conclusions are based.

The main general conclusions reached by the referee board are as follows:

(1) Saccharin in small quantities (0.3 gram per day or less) added to the food is without deleterious or poisonous action and is not injurious to the health of normal adults, so far as is ascertainable by available methods of study.

(2) Saccharin in large quantities (over 0.3 gram per day and especially above 1 gram daily) added to the food, if taken for considerable periods of time, especially after months, is liable to induce disturbances of digestion.

(3) The admixture of saccharin with food in small or large quantities has not been found to alter the quality or strength of the food. It is obvious, however, that the addition of saccharin to food as a substitute for cane sugar or some other form of sugar must be regarded as a substitution involving a reduction of the food value of the sweetened product and hence as a reduction in its quality.

[Signed] Ira Remsen, *Chairman,*
Russell H. Chittenden,
John H. Long,
Christian A. Herter,[1]
Alonzo E. Taylor,
Referee Board of Consulting Scientific Experts.

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[1] Not long after signing this report Dr. Herter died (Dec. 5, 1910). He was a most conscientious and helpful member of the board.

INFLUENCE OF SACCHARIN ON DIGESTION, METABOLISM, NUTRITION, AND GENERAL HEALTH.

By CHRISTIAN A. HERTER.

CONTENTS.

INFLUENCE OF SACCHARIN ON DIGESTION, METABOLISM, NUTRITION, AND GENERAL HEALTH.

By Christian A. Herter.

PRESENTATION OF THE DATA.

INTRODUCTION.

The chemical work relating to the effect of saccharin on three subjects was performed by Alfred J. Wakeman, Ph. D., assisted by Helen Baldwin, M. D., P. A. Kober, and E. N. O'Brien. The work of making the bacteriological examination of the feces, the examination of the blood and gastric contents, and the necessary medical and clinical examinations of these three subjects was done by William R. Williams, M. D. The work relating to the study of the effect of saccharin on two additional approximately normal subjects was done under the supervision of John S. Thacher, M. D., and the study of the effect of saccharin on a case of hyperchlorhydria was made by W. G. Lyle, M. D. The study of the effect of saccharin on digestive enzymes in vitro was performed by H. D. Dakin, D. Sc., and, finally, the study of the action of saccharin on microorganisms was carried on by Carl Ten Broeck.

The three subjects chosen for the experiment carried on directly under the supervision of Dr. Wakeman were well known to the writer and were men of character and reliability. They are designated in this report as subject I K, subject II O, and subject III N.

The experiment was commenced in the case of subjects I K and II O on September 8, 1909, and extended in the case of subject I K through January 14, 1910, a period of 129 days, while subject II O continued through February 18, 1910, a period of 164 days. The experiment was commenced with subject III N on September 20, 1909, and extended through February 20, 1910, a period of 154 days.

The time during which the men were under observation was divided into various periods. During the first, or fore period, the men took no saccharin with their food. This was followed by five periods during which the men took increasingly larger doses of saccharin with their food, commencing with 0.3 gram daily and increasing the dose of saccharin to 0.5 gram, 0.75 gram, 1 gram, and 1.5 grams per

day. During the last or after period no saccharin was taken with the food.

For the sake of definiteness Table 1 is appended.

TABLE 1.—*Name and duration of various subperiods covering the whole period of investigation.*

Name of period.	Daily dose of saccharin.	Subject I K.			Subject II O.		
		Date.	Days of experiment.	Number of days.	Date.	Days of experiment.	Number of days.
	Grams.						
Fore period	0.0	Sept. 8–21	1– 14	14	Sept. 8–21	1– 14	14
First saccharin period	.3	Sept. 22–Oct. 12	15– 35	21	Sept. 22–Oct. 12	15– 35	21
Second saccharin period	.5	Oct. 13–Nov. 2	36– 56	21	Oct. 13–Nov. 2	36– 56	21
Third saccharin period	.75	Nov. 3–14 [1]	57– 68	12	Nov. 3–28	57– 82	26
Fourth saccharin period	1.0	Nov. 29–Dec. 21	83–105	23	Nov. 29–Dec. 21	83–105	23
Fifth saccharin period	1.5	Dec. 22–28	106–112	7	Dec. 22–Feb. 4	106–150	45
After period	.0	Dec. 29–Jan. 14	113–129	17	Feb. 5–18	151–164	14

Name of period.	Daily dose of saccharin.	Subject III N.		
		Date.	Days of experiment.	Number of days.
	Grams.			
Fore period	0.0	Sept. 20–Oct. 3	1– 14	14
First saccharin period	.3	Oct. 4–24	15– 35	21
Second saccharin period	.5	Oct. 25–Nov. 14	36– 56	21
Third saccharin period	.75	Nov. 15–Dec. 5	57– 77	21
Fourth saccharin period	1.0	Dec. 6–26	78– 98	21
Fifth saccharin period	1.5	Dec. 27–Feb. 6	99–140	42
After period	.0	Feb. 7–20	141–154	14

[1] Saccharin was discontinued November 15-28.

A record was kept throughout the experiment of the food and drink taken, excepting water, each article ingested being carefully weighed and noted. During certain periods the nitrogen content of the food was estimated. The urine and feces were collected daily and examined, both chemically and microscopically. At stated intervals examinations of the blood and of the stomach contents of the men were made. The results of the various examinations are recorded in the tables embodied in the present report.

CLINICAL NOTES.

Of the three subjects who took saccharin in the course of the experiments conducted in my laboratory, one showed indications of disturbed health in the course of the experiment. This is subject I K, a man 25 years of age, weighing 61.7 kilos at the beginning of the experiment. He had been employed in the previous year as an analyst in the course of the work on sodium benzoate, but had fallen ill and was compelled to be absent from the laboratory for several weeks on account of a development of malarial fever. He did not at any time take sodium benzoate. Before beginning the saccharin experiment this subject was in fair health, although not robust. He

complained of headache from time to time. From the beginning of the saccharin experiment until its termination the subject states that he was in good health and spirits, except on certain days, when he suffered chiefly from headache. I was inclined to think that the headache was in some way referable to the use of saccharin, and for this reason ordered the interruption of the experiment. The discontinuance of the saccharin failed, however, to be followed by a cessation of the headache, which continued with little interruption to occur for a time each day with considerable regularity during the two weeks in which the use of saccharin was omitted. As being possibly a factor in the causation of headache in this subject, it is perhaps worthy of mention that his diet shows rather more than ordinarily wide fluctuations in amount of food taken. Thinking that the disturbance might perhaps be of malarial origin, quinine was employed, but failed to give definite relief. During this period there was once a slight elevation of temperature—a morning temperature of 99.7° F. After a two weeks' interval, the use of saccharin was resumed, the dose being raised to 1 gram daily from November 29 through December 21. During this period there was less headache than in previous periods. On one day toward the end of this time there was a bleeding from the nose. During the week following December 21 the dose of saccharin was raised to 1.5 grams. During this time there was no recurrence of headache. The subject was at no time incapacitated for work, but on some days experienced a good deal of discomfort and disinclination for mental activity. The use of saccharin was discontinued December 28 and the after period of the experiment brought to a close January 14. The periods of taking saccharin were therefore not so long as those in the other subjects. The completion of the full time for taking saccharin was made impracticable by the fact that the subject received an advantageous offer as analyst, the acceptance of which we deemed it proper to permit.

In this case the question naturally arose, Was the disturbance of health noted during the saccharin experiment in any way related to the taking of this substance? It is impossible to reach an absolutely positive conclusion on this matter. The most careful consideration of the conditions in this case from every available point of view failed to develop any evidence that the disturbances of health above mentioned were connected with the taking of the saccharin. The headaches were associated a considerable part of the time with a cold in the head and ceased spontaneously with the cessation of this slight catarrhal disturbance, although the saccharin was continued in increased doses for some time. During the two weeks in which the saccharin was discontinued, on the suspicion that it was in some way connected with the production of the headache, there appeared to be no improvement, but on the contrary the symptoms remained as pro-

nounced as previously—or more pronounced. The conclusion which I reached was that the disturbances noted were probably in no way connected with the intake of saccharin, and this conclusion, based on the clinical data, was supported by the failure to find any chemical evidence of derangement of function (e. g., increased intestinal putrefaction or disturbances of renal function) such as is not infrequently associated with headache of toxic origin. Nevertheless, from the nature of the case it is clear that the conclusion just stated merely represents the fairest inference that seemed to be permissible, and I do not consider it absolutely proven that the taking of saccharin was not in some obscure way connected with the disturbances noted.

Subject II O is a robust man 44 years of age, weighing 68.4 kilos at the beginning of the experiment. He was formerly employed as a subject in the experiments on the action of sodium benzoate. The health of this subject may be described as good throughout the entire period of the experiment. On November 9 he complained of a dull headache all day. On the 25th of November he experienced a slight headache during the morning. On the 29th of December he had a slight coryza. On the 6th of February he had headache all day, with digestive disturbance and slight colic during the night. The subject offers no explanation of this digestive disturbance except that he has such disturbances from time to time without being able to ascribe them to any particular error in diet.

Thus, despite this slight and occasional disorder, the subject may be regarded as having passed through the saccharin periods without the tenor of his health having been influenced.

In the case of subject III N, aged 29 years, and weighing 61.9 kilos at the beginning of the experiment, no disturbances whatever were reported throughout the entire period of the experiment. He exhibited throughout so low a percentage of free hydrochloric acid in the gastric juice that he may be properly regarded as an example of hypochlorhydria.

BODY WEIGHT.

The body weights of the three subjects were taken regularly six days in the week, at the same hour and under the same conditions. The daily fluctuations and the mean variations in weight for each period are shown in the accompanying tables. From the first day that saccharin was given until the day it was discontinued subject I K showed a gain in weight of 2.2 kilos; subject II O, of 2.1 kilos; and subject III N, of 0.9 kilos. (Table 2.) The average weight of each subject was slightly greater through the period of highest saccharin dosage than during any preceding period. The nutritional state of the subjects as measured by changes in body weight was not impaired by the saccharin taken with the food.

Table 2.—*Record of body weight.*

Subject I K.			Subject II O.			Subject III N.			Subject I K.			Subject II O.			Subject III N.		
Day of experiment.	Daily dose of saccharin.	Body weight.	Day of experiment.	Daily dose of saccharin.	Body weight.	Day of experiment.	Daily dose of saccharin.	Body weight.	Day of experiment.	Daily dose of saccharin.	Body weight.	Day of experiment.	Daily dose of saccharin.	Body weight.	Day of experiment.	Daily dose of saccharin.	Body weight.
	Gm.	*Kilos.*		*Gm.*	*Kilos.*		*Gm.*	*Kilos.*		*Gms.*	*Kilos.*		*Gms.*	*Kilos.*		*Gms.*	*Kilos.*
1	0	61.7	1	0	68.4	1	0	61.9	80	0	62.0	83	1.0	69.7	80	1.0	63.0
2	0	62.3	2	0	68.8	2	0	61.9	81	0	61.2	84	1.0	69.4	81	1.0	62.8
3	0	61.7	3	0	68.6	3	0	62.2	83	1.0	62.2	85	1.0	70.2	82	1.0	62.8
4	0	61.7	4	0	68.6	4	0	62.2	84	1.0	62.0	86	1.0	69.8	83	1.0	62.8
6	0	61.7	6	0	68.4	5	0	61.9	85	1.0	61.4	87	1.0	70.0	85	1.0	63.4
7	0	61.4	7	0	68.6	6	0	61.7	86	1.0	61.4	88	1.0	69.8	86	1.0	63.1
8	0	61.0	8	0	68.9	7	0	61.7	87	1.0	61.8	90	1.0	70.2	87	1.0	63.2
9	0	61.4	9	0	69.2	8	0	62.1	88	1.0	62.0	91	1.0	70.2	88	1.0	63.5
10	0	61.4	10	0	69.4	9	0	62.1	90	1.0	62.0	92	1.0	70.0	89	1.0	63.2
11	0	61.2	11	0	69.2	10	0	61.9	91	1.0	62.4	93	1.0	70.0	90	1.0	63.4
12	0	61.4	13	0	69.2	11	0	61.9	92	1.0	62.4	94	1.0	70.0	92	1.0	63.5
13	0	61.4	14	0	69.0	12	0	61.9	93	1.0	62.3	95	1.0	70.0	93	1.0	63.2
14	0	61.0	15	0.30	68.6	13	0	62.1	94	1.0	61.9	97	1.0	69.7	94	1.0	63.0
15	0.30	61.0	16	.30	69.0	15	0.30	62.1	95	1.0	62.4	98	1.0	69.8	95	1.0	62.8
16	.30	61.0	17	.30	68.6	16	.30	62.0	97	1.0	62.8	99	1.0	70.2	96	1.0	62.8
17	.30	60.7	18	.30	68.4	17	.30	62.0	98	1.0	62.6	100	1.0	70.2	99	1.5	63.2
18	.30	61.0	20	.30	68.4	18	.30	62.2	99	1.0	62.7	101	1.0	70.0	100	1.5	63.5
20	.30	61.0	21	.30	68.5	19	.30	62.0	100	1.0	62.6	104	1.0	69.4	101	1.5	63.2
21	.30	61.2	22	.30	68.8	20	.30	62.0	104	1.0	61.9	105	1.0	70.0	102	1.5	63.3
22	.30	61.2	24	.30	68.9	22	.30	62.1	105	1.0	62.7	106	1.5	69.8	103	1.5	63.0
23	.30	61.2	25	.30	68.5	23	.30	62.0	106	1.5	62.2	107	1.5	70.0	106	1.5	62.9
24	.30	60.7	27	.30	68.6	24	.30	62.1	107	1.5	.62.2	108	1.5	70.0	107	1.5	63.0
25	.30	61.1	28	.30	68.9	25	.30	61.7	108	1.5	62.5	111	1.5	70.5	108	1.5	63.0
27	.30	60.7	29	.30	69.2	26	.30	61.7	110	1.5	62.3	112	1.5	70.8	109	1.5	63.5
28	.30	60.6	30	.30	69.3	27	.30	61.9	111	1.5	62.6	113	1.5	70.2	110	1.5	63.5
29	.30	61.1	31	.30	69.2	29	.30	61.9	112	1.5	63.2	114	1.5	70.3	111	1.5	63.4
30	.30	60.3	32	.30	69.2	30	.30	61.9	113	0	62.5	115	1.5	70.0	113	1.5	63.3
31	.30	61.1	34	.30	68.0	31	.30	61.9	114	0	62.8	118	1.5	70.0	114	1.5	63.3
32	.30	60.5	35	.30	69.4	32	.30	61.7	115	0	63.5	119	1.5	69.8	115	1.5	63.0
34	.30	60.6	36	.50	68.6	33	.30	61.7	118	0	63.2	120	1.5	69.8	116	1.5	63.0
35	.30	61.0	37	.50	68.6	34	.30	61.7	119	0	63.0	121	1.5	69.8	117	1.5	63.0
36	.50	61.2	38	.50	69.2	36	.50	61.7	120	0	63.0	122	1.5	70.0	118	1.5	63.3
37	.50	61.0	39	.50	69.4	37	.50	61.7	121	0	63.3	123	1.5	70.0	120	1.5	62.6
38	.50	61.1	41	.50	69.2	38	.50	61.7	122	0	63.0	125	1.5	69.8	121	1.5	63.3
39	.50	61.2	42	.50	69.4	39	.50	62.1	123	0	63.3	126	1.5	70.2	122	1.5	63.0
41	.50	61.4	43	.50	69.4	40	.50	61.9	124	0	63.0	127	1.5	70.2	123	1.5	63.5
42	.50	61.4	44	.50	69.6	41	.50	62.0	125	0	62.8	128	1.5	69.8	124	1.5	63.3
43	.50	61.4	45	.50	69.6	43	.50	62.0	126	0	62.5	129	1.5	70.0	125	1.5	63.6
44	.50	61.2	46	.50	69.6	44	.50	62.5	127	0	62.4	130	1.5	70.0	127	1.5	63.5
45	.50	61.2	48	.50	69.4	45	.50	62.4	128	0	63.0	132	1.5	70.2	128	1.5	63.0
46	.50	61.3	49	.50	69.4	46	.50	62.2	129	0	63.4	133	1.5	70.4	129	1.5	63.5
48	.50	61.9	50	.50	69.6	47	.50	62.4	....	....	....	134	1.5	69.8	130	1.5	63.7
49	.50	61.8	51	.50	69.4	48	.50	62.4	....	....	....	135	1.5	70.3	131	1.5	63.3
50	.50	61.4	52	.50	69.4	50	.50	62.8	....	....	....	136	1.5	70.4	132	1.5	63.5
51	.50	61.4	53	.50	69.4	51	.50	62.8	....	....	....	137	1.5	70.3	134	1.5	63.7
52	.50	61.9	55	.50	69.2	52	.50	62.6	....	....	....	139	1.5	70.2	135	1.5	63.5
53	.50	62.4	56	.50	69.4	53	.50	62.6	....	....	....	140	1.5	70.3	136	1.5	63.3
55	.50	62.2	57	.75	69.6	54	.50	62.8	....	....	....	141	1.5	70.4	137	1.5	63.5
56	.50	62.6	58	.75	69.8	55	.50	62.8	....	....	....	142	1.5	70.7	138	1.5	63.5
57	.75	62.0	59	.75	69.7	57	.75	62.6	....	....	....	143	1.5	70.5	139	1.5	63.0
58	.75	62.1	60	.75	69.6	58	.75	62.8	....	....	....	144	1.5	70.5	141	0	63.0
59	.75	62.2	62	.75	69.6	59	.75	62.8	....	....	....	146	1.5	70.3	142	0	63.3
60	.75	62.0	63	.75	69.8	60	.75	62.7	....	....	....	147	1.5	70.6	143	0	63.3
62	.75	62.0	64	.75	70.0	61	.75	62.8	....	....	....	148	1.5	70.5	144	0	63.5
63	.75	62.2	65	.75	69.6	62	.75	62.9	....	....	....	149	1.5	70.7	145	0	63.3
64	.75	62.2	66	.75	70.1	64	.75	62.8	....	....	....	150	1.5	70.7	146	0	63.6
65	.75	62.3	67	.75	69.7	65	.75	63.0	....	....	....	151	0	70.6	148	0	63.7
66	.75	62.0	69	.75	69.8	66	.75	63.1	....	....	....	153	0	70.5	149	0	63.7
67	.75	61.7	70	.75	69.7	68	.75	63.1	....	....	....	154	0	70.4	150	0	63.5
69	0	62.3	71	.75	69.7	69	.75	63.0	....	....	....	155	0	70.6	151	0	63.6
70	0	62.9	72	.75	70.1	71	.75	63.2	....	....	....	156	0	70.5	152	0	63.5
71	0	62.6	73	.75	70.0	72	.75	63.1	....	....	....	157	0	70.6	153	0	63.8
72	0	62.0	74	.75	69.8	73	.75	63.0	....	....	....	158	0	70.8	....	....	....
73	0	62.4	76	.75	69.8	74	.75	63.0	....	....	....	160	0	70.5	....	....	....
74	0	62.6	77	.75	70.2	75	.75	62.8	....	....	....	161	0	70.7	....	....	....
76	0	62.5	78	.75	70.5	76	.75	63.0	....	....	....	162	0	70.3	....	....	....
77	0	62.3	80	.75	70.7	78	1.0	62.6	....	....	....	163	0	70.4	....	....	....
78	0	62.3	81	.75	70.2	79	1.0	63.1	....	....	....	164	0	70.7	....	....	....

TABLE 3.—*Average body weight of subjects.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Body weight.	Days of experiment.	Daily dose of saccharin.	Body weight.	Days of experiment.	Daily dose of saccharin.	Body weight.
	Grams.	*Kilos.*		*Grams.*	*Kilos.*		*Grams.*	*Kilos.*
1–7	0	61.8	1–7	0	68.6	1–7	0	61.9
8–14	0	61.3	8–14	0	69.2	8–14	0	62.0
Av., 14 days		61.5	Av., 14 days		68.9	Av., 14 days		61.9
15–21	0.3	61.0	15–21	0.3	68.6	15–21	0.3	62.1
22–28	.3	60.9	22–28	.3	68.7	22–28	.3	61.9
29–35	.3	60.8	29–35	.3	69.2	29–35	.3	61.8
Av., 21 days		60.9	Av., 21 days		68.8	Av., 21 days		61.9
36–42	.5	61.2	36–42	.5	69.1	36–42	.5	61.9
43–49	.5	61.5	43–49	.5	69.5	43–49	.5	62.3
50–56	.5	62.0	50–56	.5	69.4	50–56	.5	62.8
Av., 21 days		61.6	Av., 21 days		69.3	Av., 21 days		62.3
57–63	.75	62.1	57–63	.75	69.7	57–63	.75	62.8
64–68	.75	62.1	64–70	.75	69.8	64–70	.75	63.0
			71–77	.75	69.9	71–77	.75	63.0
Av., 12 days		62.1	78–82	.75	70.5			
69–75	0	62.5						
76–82	0	62.1						
Av., 14 days		62.3	Av., 26 days		69.9	Av., 21 days		62.9
83–84	1.0	62.1	83–91	1.0	69.9	78–84	1.0	62.9
85–91	1.0	61.8	92–98	1.0	69.9	85–91	1.0	63.3
92–98	1.0	62.4	99–105	1.0	70.0	92–98	1.0	63.1
99–105	1.0	62.5						
Av., 23 days		62.2	Av., 23 days		69.9	Av., 21 days		63.1
106–112	1.5	62.5	106–112	1.5	70.2	99–105	1.5	63.3
			113–119	1.5	70.1	106–112	1.5	63.2
			120–126	1.5	69.9	113–119	1.5	63.2
			127–133	1.5	70.1	120–126	1.5	63.2
			134–140	1.5	70.2	127–133	1.5	63.5
			141–147	1.5	70.5	134–140	1.5	63.4
			148–150	1.5	70.6			
Av., 7 days		62.5	Av., 45 days		70.2	Av., 42 days		63.3
113–122	0	63.0	151–157	0	70.5	141–147	0	63.3
123–129	0	62.9	158–164	0	70.5	148–154	0	63.7
Av., 17 days		63.0	Av., 14 days		70.5	Av., 14 days		63.5

PULSE, RESPIRATION, AND TEMPERATURE.

The pulse, respiration, and temperature of subject II O and subject III N were taken in the morning and afternoon of five days of the period of highest saccharin dosage and six days of the after period when no saccharin was given. The variations as shown in the accompanying chart were all within normal limits. The variations in the average for the two periods were too slight to have any significance.

TABLE 4.—*Record of pulse, respiration, and temperature.*

Date of experiment.	Time of day.	Daily dose of saccharin.	Subject II O.			Subject III N.		
			Pulse per minute.	Respiration per minute.	Temperature.	Pulse per minute.	Respiration per minute.	Temperature.
1910.		*Grams.*			*°F.*			*°F.*
Jan. 31	11 a. m.	1.5	68	11	98.3	64	15	98.4
Do.	4.30 p. m.	1.5	81	12	99.0	62	16	97.6
Feb. 1	10 a. m.	1.5	68	13	97.9	70	16	98.6
Do.	4 30 p. m.	1.5	63	12	98.6	67	17	99.0
Feb. 2	10 a. m.	1.5	64	12	98.1	68	14	98.6
Do.	4 p. m.	1.5	74	13	98.8	66	14	98.6
Feb. 3	10 a. m.	1.5	62	11	98.1	72	17	98.1
Do.	4 p. m.	1.5	72	14	98.6	68	18	98.6
Feb. 4	10 a. m.	1.5	64	13	97.8	69	15	98.3
Do.	4 p. m.	1.5	72	14	99.0	78	18	98.6
Average			69	13	98.4	68	16	98.4
Feb. 7	11 a. m.	0	70	14	98.6	74	17	98.6
Do.	5 p. m.	0	84	13	99.0	65	15	99.0
Feb. 8	11 a. m.	0	68	16	98.3	76	15	98.3
Do.	4 p. m.	0	70	14	98.6	69	15	98.6
Feb. 9	11 a. m.	0	64	15	98.3	76	14	98.4
Do.	5 p. m.	0	72	15	98.8	69	14	98.6
Feb. 11	11 a. m.	0	62	11	98.3	72	15	98.1
Do.	5 p. m.	0	78	15	98.4	74	16	98.3
Feb. 14	11 a. m.	0	64	15	98.6	68	17	98.4
Do.	5 p. m.	0	80	16	99.0	64	15	98.6
Feb. 18	11 a. m.	0	68	15	98.6	69	15	98.4
Do.	5 p. m.	0	76	16	99.0	72	16	98.4
Average			71	15	98.6	71	15	98.5

CHARACTER OF THE DAILY DIET.

The character of the men's dietary may be noted by a study of the food table (Table 77).

The subjects were married men. Subject I K took all his meals at home with his family. Subjects II O and III N did likewise with the exception of the noon meal, which was taken at the place where the experimental work was carried on. This was according to their custom before the experiment commenced. The men were not limited to a prescribed ration, but were allowed their usual freedom in regard to quantity and kind of food consumed, and in consequence their dietary did not undergo any change at the time of the experiment from that to which they had been accustomed.

Table 5 shows the daily average intake of nitrogen for each subject during those periods when the food was analyzed. The general daily average intake of nitrogen as seen from the table for subject I K is 15.85 grams; for subject II O it amounts to 18.21 grams; and for subject III N to 17.96 grams.

TABLE 5.—*Daily average intake of nitrogen.*

Subject I K.				Subject II O.				Subject III N.			
Days of experiment.	Daily dose of saccharin.	Nitrogen in food.	Variation from average.	Days of experiment.	Daily dose of saccharin.	Nitrogen in food.	Variation from average.	Days of experiment.	Daily dose of saccharin.	Nitrogen in food.	Variation from average.
	Grams.	*Grams.*	*Grams.*		*Grams.*	*Grams.*	*Grams.*		*Grams.*	*Grams.*	*Grams.*
8-14	0	13.83	−2.02	8-14	0	17.15	−1.06	8-14	0	16.38	−1.35
29-35	0.3	14.32	−1.53	29-35	0.3	16.73	−1.48	29-35	0.3	17.54	− .42
50-56	.5	17.45	+1.60	50-56	.5	17.23	− .98	50-56	.5	20.50	+2.54
				71-77	.75	19.07	+ .86	71-77	.75	18.88	+ .92
85-91	1.0	15.07	− .78	92-98	1.0	18.56	+ .35	92-98	1.0	18.89	+ .93
106-112	1.5	18.07	+2.22	113-119	1.5	19.15	+ .94	113-119	1.5	16.06	−1.90
				134-140	1.5	19.54	+1.33	134-140	1.5	16 91	−1.05
123-129	0	16.34	+ .49	158-164	0	18.22	+ .01	148-154	0	18.51	+ .55
Av.		15.85		Av.		18.21		Av.		17.96	

The general character of the daily dietary may be indicated by a study of the energy-yielding power of the food ingested. Since this power to yield energy is largely due to the fats and carbohydrates contained in the food, variations in the caloric or fuel value of the food point to variation in its content of fats and carbohydrates. In general the caloric value of the food ingested by an individual is a measure of his activity and appetite. In the accompanying table (Table 6) the fuel value of the food ingested by the subjects during the period covered by the experiment has been estimated and recorded in terms of large calories. The results are seen to remain fairly uniform throughout, indicating but slight variations from week to week in the amounts of fats and carbohydrates ingested.

TABLE 6.—*Estimated fuel value of the daily food.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Fuel value of food.	Days of experiment.	Daily dose of saccharin.	Fuel value of food.	Days of experiment.	Daily dose of saccharin.	Fuel value of food.
	Gram.	*Calories.*		*Gram.*	*Calories.*		*Gram.*	*Calories.*
1-7	0	2,767	1-7	0	2,370	1-7	0	2,546
8-14	0	2,587	8-14	0	2,837	8-14	0	2,973
Av., 14 days		2,677	Av., 14 days		2,604	Av., 14 days		2,760
15-21	0.3	2,866	15-21	0.3	2,615	15-21	0.3	2,901
22-28	.3	3,234	22-28	.3	2,988	22-28	.3	2,890
29-35	.3	2,906	29-35	.3	2,330	29-35	.3	2,789
Av., 21 days		3,002	Av., 21 days		2,644	Av., 21 days		2,860
36-42	.5	3,221	36-42	.5	2,536	36-42	.5	3,107
43-49	.5	2,932	43-49	.5	2,553	43-49	.5	3,199
50-56	.5	3,186	50-56	.5	2,430	50-56	.5	3,134
Av., 21 days		3,113	Av., 21 days		2,507	Av., 21 days		3,147
57-63	.75	3,048	57-63	.75	2,636	57-63	.75	2,896
64-68	.75	2,398	64-70	.75	2,502	64-70	.75	3,092
			71-77	.75	2,570	71-77	.75	2,920
Av., 12 days		2,777	78-82	.75	2,453			
69-75	0	2,649						
76-82	0	2,680						
Av., 14 days		2,665	Av., 26 days		2,547	Av., 21 days		2,969

TABLE 6.—*Estimated fuel value of the daily food*—Continued.

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Fuel value of food.	Days of experiment.	Daily dose of saccharin.	Fuel value of food.	Days of experiment.	Daily dose of saccharin in food.	Fuel value of food.
	Grams.	*Calories.*		*Grams.*	*Calories.*		*Grams.*	*Calories.*
83-84	1.0	2,652	83-91	1.0	2,667	78-84	1.0	3,065
85-91	1.0	3,053	92-98	1.0	2,427	85-91	1.0	2,674
92-98	1.0	3,370	99-105	1.0	2,434	92-98	1.0	2,836
99-105	1.0	2,616						
Av., 23 days	....	2,982	Av., 23 days	....	2,566	Av., 21 days	....	2,858
106-112	1.5	3,094	106-112	1.5	2,585	99-105	1.5	2,852
			113-119	1.5	2,403	106-112	1.5	2,980
			120-126	1.5	2,454	113-119	1.5	2,643
			127-133	1.5	2,576	120-126	1.5	2,676
			134-140	1.5	2,750	127-133	1.5	2,662
			141-147	1.5	2,876	134-140	1.5	2,656
			148-150	1.5	2,611			
Av., 7 days	....	3,094	Av., 45 days	....	2,607	Av., 42 days	....	2,745
113-122	0	3,163	151-157	0	2,580	141-147	0	2,798
123-129	0	3,073	158-164	0	2,689	148-154	0	2,822
Av., 17 days	....	3,126	Av., 14 days	....	2,640	Av., 14 days	....	2,810

ADMINISTRATION OF THE SACCHARIN.

The saccharin was taken by the men three times a day with their meals, a third of the daily dose being taken at each meal. The preparation of saccharin used was found by repeated analysis by Reid's "valuation" or hydrolytic method (American Chemical Journal, 1899, vol. 21, p. 461) to contain 98.6 per cent of pure saccharin. The saccharin was taken in solution in the form of its sodium compound, prepared by dissolving 1 part of saccharin in 60 parts of water containing 0.5 part of sodium bicarbonate.

The men took their saccharin in tea, in coffee, and in water, and not infrequently it was taken with certain foods whose flavor would not be particularly impaired by being sweetened.

The percentage of saccharin in the total day's food is given in the table in the section which follows.

EFFECT ON APPETITE AND THE AMOUNT OF FOOD INGESTED.

For certain representative weeks—those when nitrogen balances were taken—the weight of the total day's food has been calculated from Table 77, where the weight of each foodstuff consumed by the men is recorded. From the weight of the total day's food and the weight of the saccharin ingested daily, the corresponding percentage of saccharin in the total day's food has also been calculated. The results are given in Tables 7 and 8. In adding up the weights of food taken each day, tea, coffee, beer, and water were not included in the sum.

TABLE 7.—*Weight of total day's food and percentage of saccharin in the same.*

Subject I K.				Subject II O.				Subject III N.			
Day of experiment.	Daily dose of saccharin.	Weight of food per day.	Saccharin in food.	Day of experiment.	Daily dose of saccharin.	Weight of food per day.	Saccharin in food.	Day of experiment.	Daily dose of saccharin.	Weight of food per day.	Saccharin in food.
	Grams.	*Grams.*	*Per ct.*		*Grams.*	*Grams.*	*Per ct.*		*Grams.*	*Grams.*	*Per ct.*
8........	0	1,440	....	8........	0	1,197	....	8........	0	1,659	....
9........	0	920	....	9........	0	1,509	....	9........	0	1,591	....
10........	0	1,257	....	10........	0	1,337	....	10........	0	1,872	....
11........	0	1,195	....	11........	0	1,327	....	11........	0	1,905	....
12........	0	1,216	....	12........	0	1,523	....	12........	0	1,692	....
13........	0	1,127	....	13........	0	1,986	....	13........	0	2,084	....
14........	0	1,315	....	14........	0	1,202	....	14........	0	1,783	....
	0	1,211	....		0	1,440	....		0	1,798	....
29........	0.3	1,050	0.029	29........	0.3	1,657	0.018	29........	0.3	1,946	0.015
30........	.3	1,251	.024	30........	.3	1,207	.025	30........	.3	1,732	.017
31........	.3	1,419	.021	31........	.3	1,317	.023	31........	.3	1,558	.019
32........	.3	833	.036	32........	.3	1,704	.018	32........	.3	1,632	.018
33........	.3	1,222	.025	33........	.3	1,712	.018	33........	.3	1,915	.016
34........	.3	1,252	.024	34........	.3	1,243	.024	34........	.3	1,627	.018
35........	.3	1,800	.016	35........	.3	1,469	.020	35........	.3	1,649	.018
	.3	1,261	.024		.3	1,473	.020		.3	1,723	.017
50........	.5	1,847	.027	50........	.5	1,778	.028	50........	.5	1,926	.026
51........	.5	1,679	.030	51........	.5	1,617	.031	51........	.5	1,956	.026
52........	.5	1,389	.036	52........	.5	1,369	.037	52........	.5	1,524	.033
53........	.5	1,834	.027	53........	.5	1,633	.031	53........	.5	1,375	.036
54........	.5	2,094	.024	54........	.5	1,405	.036	54........	.5	1,843	.027
55........	.5	1,697	.030	55........	.5	1,148	.044	55........	.5	1,865	.027
56........	.5	1,080	.046	56........	.5	1,290	.039	56........	.5	1,699	.029
	.5	1,660	.030		.5	1,463	.034		.5	1,741	.029
				71........	.75	1,762	.043	71........	.75	1,513	.050
				72........	.75	1,525	.049	72........	.75	1,511	.050
				73........	.75	1,636	.045	73........	.75	1,940	.039
				74........	.75	1,271	.059	74........	.75	1,652	.045
				75........	.75	1,360	.055	75........	.75	1,647	.046
				76........	.75	1,773	.042	76........	.75	1,717	.043
				77........	.75	1,709	.044	77........	.75	1,671	.045
					.75	1,574	.048		.75	1,664	.045
85........	1.0	929	.108	92........	1.0	1,513	.066	92........	1.0	1,497	.067
86........	1.0	1,357	.074	93........	1.0	1,391	.072	93........	1.0	1,665	.060
87........	1.0	1,469	.068	94........	1.0	1,528	.065	94........	1.0	967	.103
88........	1.0	1,037	.097	95........	1.0	1,230	.081	95........	1.0	1,418	.071
89........	1.0	1,295	.077	96........	1.0	1,525	.066	96........	1.0	1,899	.053
90........	1.0	1,112	.090	97........	1.0	1,407	.071	97........	1.0	1,368	.073
91........	1.0	1,793	.056	98........	1.0	1,715	.058	98........	1.0	1,883	.053
	1.0	1,285	.078		1.0	1,473	.068		1.0	1,528	.065
106......	1.5	969	.162	113......	1.5	1,650	.091	113......	1.5	1,352	.111
107......	1.5	1,386	.108	114......	1.5	1,672	.150	114......	1.5	1,173	.128
108......	1.5	1,382	.108	115......	1.5	1,453	.103	115......	1.5	1,989	.076
109......	1.5	1,842	.081	116......	1.5	1,450	.104	116......	1.5	1,336	.112
110......	1.5	1,572	.095	117......	1.5	1,247	.120	117......	1.5	1,927	.078
111......	1.5	1,345	.111	118......	1.5	1,455	.103	118......	1.5	1,559	.096
112......	1.5	1,553	.097	119......	1.5	1,693	.089	119......	1.5	1,682	.089
	1.5	1,436	.105		1.5	1,517	.099		1.5	1,574	.095
				134......	1.5	1,514	.099	134......	1.5	1,802	.083
				135......	1.5	1,651	.091	135......	1.5	1,299	.115
				136......	1.5	1,571	.095	136......	1.5	2,004	.075
				137......	1.5	3,313	.114	137......	1.5	1,506	.100
				138......	1.5	1,448	.104	138......	1.5	1,579	.095
				139......	1.5	1,402	.107	139......	1.5	1,741	.086
				140......	1.5	1,764	.085	140......	1.5	1,262	.119
					1.5	1,523	.098		1.5	1,599	.094
123......	0	1,368	....	158......	0	1,741	....	148......	0	2,044	....
124......	0	1,317	....	159......	0	1,258	....	149......	0	1,415	....
125......	0	1,213	....	160......	0	1,642	....	150......	0	1,762	....
126......	0	905	....	161......	0	1,729	....	151......	0	1,643	....
127......	0	1,039	....	162......	0	1,308	....	152......	0	1,787	....
128......	0	1,552	....	163......	0	1,346	....	153......	0	1,816	....
129......	0	1,085	....	164......	0	1,300	....	154......	0	1,140	....
	0	1,297	....		0	1,475	....		0	1,658	....

TABLE 8.—*Average weight of total day's food and average percentage of saccharin in the same.*

Subject I K.				Subject II O.				Subject III N.			
Days of experiment.	Daily dose of saccharin.	Weight of food per day.	Saccharin in the food.	Days of experiment.	Daily dose of saccharin.	Weight of food per day.	Saccharin in the food.	Days of experiment.	Daily dose of saccharin.	Weight of food per day.	Saccharin in the food.
	Grams.	*Grams.*	*Per ct.*		*Grams.*	*Grams.*	*Per ct.*		*Grams.*	*Grams.*	*Per ct.*
29–35....	0.3	1,261	0.024	29–35...	0.3	1,473	0.020	29–35...	0.3	1,723	0.017
50–56....	.5	1,660	.030	50–56...	.5	1,463	.034	50–56...	.5	1,741	.029
				71–77...	.75	1,574	.048	71–77...	.75	1,664	.045
85–91....	1.0	1,285	.078	92–98...	1.0	1,473	.068	92–98...	1.0	1,528	.065
106–112..	1.5	1,436	.105	113–119.	1.5	1,517	.099	113–119.	1.5	1,574	.095
				134–140.	1.5	1,523	.098	134–140.	1.5	1,599	.094

The average percentages of saccharin in the total day's food are seen to increase in the case of subject I K from 0.024 to 0.105 according to the saccharin dosage; in case of subject II O the percentages increase from 0.02 to 0.099 and in case of subject III N from 0.017 to 0.095. In this connection it may be of interest to note that a solution of saccharin of 0.01 per cent strength is agreeably sweet, but when the concentration is increased to 0.1 per cent the resulting solution becomes bitter and disagreeable.

The total food ingested daily varied within rather wide limits from day to day. In the case of subject II O the average daily quantities of food taken during the different periods varied but slightly throughout the experiment. In the case of subject III N, while the variations were not marked, there was a slight diminution of food taken during the periods of highest saccharin dosage. In the case of subject I K the variations were more marked. The average amounts of food taken during the first and second period were nearly the same. In the third period the appetite seems to have been markedly increased, so that the average weight of food ingested was definitely more than before. After this followed the period when the subject complained of headache and a general feeling of indisposition. During the next period when 1 gram of saccharin was taken daily the amount of food corresponded again to that taken at the beginning of the experiment. In the period of highest saccharin dosage the amount of food taken again became definitely greater and in the after period it again decreased. The figures taken together, however, fail to show any specific effects due to the saccharin upon the total amount of food ingested day by day.

NITROGEN OF THE FOOD.

The nitrogen of the food and the nitrogen balance were determined for representative weeks in the fore period, the after period, and each period of the varying saccharin dosage.

Composite samples of the food material were obtained for analysis by taking a quarter in weight of each foodstuff consumed by the men and putting it aside preserved with sodium benzoate in a jar. At the close of the seven-day period during which it was desirable to obtain a nitrogen balance, the contents of the jar were rendered uniform by being passed through a fine meat chopper and the total mass weighed without loss. Uniform samples were taken for the estimation of nitrogen by the Kjeldahl-Gunning method.

By inspection of the table showing the daily average intake of nitrogen (Table 5, p. 20) it will be seen that the average nitrogen of the food was greater during the time that saccharin was taken than during the fore period. In the case of subject I K the nitrogen of the food was least during the fore period. It increased during the first and second saccharin periods. It then became less in the period following the attack of headache which this subject suffered in December, but again increased during the period of highest saccharin dosage. It decreased somewhat in the after period.

In the case of subject II O the nitrogen of the food was less during the fore period than during any other period excepting that of lowest saccharin dosage, when it became slightly less. Following this it reached its highest amount in the last half of the period of high saccharin dosage and decreased slightly in the after period. In the case of subject III N the nitrogen of the food was low in the fore period and increased, reaching the highest amount in the second saccharin period. It then became lower, reaching the lowest amount in the first half of the period of highest saccharin dosage, when it increased again in the last half of the period of highest saccharin dosage. It continued to increase during the after period.

URINE COLLECTION AND EXAMINATION.

Each subject collected his urine without interruption throughout the experiment, observing the necessary precautions to avoid decomposition. The urines were collected for periods of 48 and 72 hours, making three collections a week. All quantitative determinations with the exception of saccharin and chlorine were made in duplicate on a uniform sample covering the period of collection. The recorded results relating to the urine are uniformly based on a volume of urine representing a 24-hour collection, this volume being the daily average of the two days' or three days' collection, as the case might be. The urinary examination included qualitative tests for sugar and albumin, aromatic oxyacids, indolacetic acid, and indican—the tests being carried out in such a way as to render possible a comparison of the readings made from day to day. The quantitative estimations included saccharin, total nitrogen, ammonia nitrogen, uric-acid nitrogen, total

sulphur, inorganic sulphur, ethereal sulphur, neutral sulphur, chlorine, and total acidity. A microscopic examination of the sediment was made upon all the specimens.

METHOD OF ANALYSIS.

Sugar and reducing substances, by boiling with Fehling's solution.

Albumin, by the usual heat and contact tests.

Aromatic oxy-acids and indolacetic acid, by adding to one-thirtieth of the 24-hour sample 20 grams of ammonium sulphate and a few drops of sulphuric acid and shaking out with 20 c. c. of ether. The ether was removed from 10 c. c. of the extract and the residue dissolved in 20 c. c. of water. To 10 c. c. of this solution 10 c. c. of concentrated hydrochloric acid and one drop of 0.1 per cent potassium nitrite solution was added. A red coloration indicated the presence of indolacetic acid, the relative amount being shown by the intensity of the reaction. The remaining 10 c. c. of the solution were treated with a few drops of Millon's reagent and the mixture boiled. A resulting red color showed the presence of aromatic oxy-acids, the intensity of reaction indicating the relative amount.

Indican, by Folin's method (American Journal of Physiology, 1905, vol. 13, p. 53).

Saccharin: The acidulated urine was shaken out with ethyl acetate. The residue, after removal of the ethyl acetate, was digested at 150° C. for two hours with the reagent prepared by bringing together equal weights of phenol and sulphuric acid. The resulting mass containing the coloring matter derived from the saccharin was dissolved in water, a solution of lead acetate added in slight excess, and the solution brought to a definite volume. A portion of the clear yellow filtrate was measured in a Dubosc colorimeter against a known standard solution prepared in a similar way from a known amount of saccharin. (Journal of Biological Chemistry, 1910, vol. 8, p. 233.)

Total nitrogen was determined by the Kjeldahl-Gunning method.

Ammonia nitrogen, by Folin's method (American Journal of Physiology, 1905, vol. 13, p. 47).

Uric-acid nitrogen, by Folin's method (American Journal of Physiology, 1905, vol. 13, p. 49).

Total sulphur, by the method of Benedict[1] (Journal of Biological Chemistry, 1909, vol. 6, p. 363).

Inorganic sulphur and ethereal sulphur, by Folin's method (Journal of Biological Chemistry, 1905–6, vol. 1, p. 131).

Neutral sulphur, by difference.

Chlorine, by the Volhard method (Neubauer und Vogel, Analyse des Harns, 1890, p. 705).

Total acidity, by Folin's method (American Journal of Physiology, 1905, vol. 13, p. 53).

FECES COLLECTION AND EXAMINATION.

The feces of each subject were collected and weighed for each day when passed during the experiment. The color, consistence, and reaction with litmus paper were noted. Qualitative tests were made for indol, skatol, and hydrobilirubin and the relative intensity of the reaction recorded, the tests being carried out in such a way as to make possible a comparison of successive readings. Quantitative estimations were made of the content of water, nitrogen, hydrogen sulphide, and saccharin. Both qualitative and quantitative tests were made with greater or lesser frequency as indicated in the tables. In addition the feces were examined bacteriologically.

METHOD OF ANALYSIS.

The presence of indol and skatol was noted by distilling the fresh acidulated feces and testing the distillate with dimethyl amido-benzaldehyde, a pink coloration indicating the presence of indol, a blue or violet color that of skatol.

Hydrobilirubin was tested for by rubbing up the fresh feces in a mortar with a solution of mercuric bichloride, according to the method of Schmidt. (Verhandl. d. Congresses f. inn. Med., 1895, vol. 13, p. 320.)

[1] The application of Benedict's method to the quantitative estimation of the sulphur of saccharin in the urine seemed justifiable from the experimental results obtained and shown in the following table:

Test of Benedict's method applied to sulphur of saccharin.

Amount of urine.	Saccharin added.	Sulphur of saccharin added.	Weight of $BaSO_4$.	Sulphur of $BaSO_4$.	After deducting sulphur of saccharin added.
c. c.	*Gram.*	*Gram.*	*Gram.*	*Gram.*	*Gram.*
10	0	0	0.0495	0.00680	....
10	0	0	.0494	.00679	....
10	0	0	.0492	.00676	....
Av.	....	....	....	.00678	0.00678
10	0.00964	0.0017	0.0612	0.00840	....
10	.00964	.0017	.0604	.00830	....
10	.00964	.0017	.0596	.00820	....
Av. ..	....	....	....	.00830	.00660

The water content of the feces was estimated by drying a portion of the fresh feces to a constant weight at 105° C.

The nitrogen determinations were made in duplicate upon the dried feces from acidulated fresh feces by the Kjeldahl-Gunning method.

The hydrogen sulphide was estimated by drawing a stream of air properly washed through a suspension of finely divided fresh feces in water acidulated with sulphuric acid, then through a calcium chloride tube containing cotton, and finally through a solution of lead acetate acidulated with acetic acid, the precipitated lead sulphide being filtered, dried, and weighed.

The saccharin was estimated by digesting a portion of the dried feces with an alcoholic solution of sodium bicarbonate at a gentle heat, acidulating, and shaking out an aliquot portion of the clear filtrate with ethyl acetate. The remainder of the process was similar to that applied for the estimation of saccharin in the urine.

URINE.

VOLUME.

Fluctuations in the daily volume of the urine are noted in the table of daily records. (See Table 76.) The actual variations can be better studied in the accompanying table of averages of daily volumes of urine for the different periods. (Table 9.) It should be noted in the first place that the average daily volume for each of the subjects is less in the fore period than in the after period. This is probably due to the greater loss of water through the perspiration during the early fall than during the winter months. The volumes of the after period thus seem more appropriate for comparison with the saccharin periods than the earlier observations. Taking, then, the average daily volume of the after period for comparison, it will be noted that in all of the subjects there is a slight increase in average volume during the time that saccharin is taken, and that this increase does not vary with the dose of saccharin, but fluctuates irregularly throughout the time of observation. As this increase in daily volume is found in all the subjects and during all the periods, it may probably be due to the taking of the saccharin and may probably be attributed to a slight diuretic action, or to an increase in thirst, or to a tendency to drink some additional liquid with the saccharin when it is taken.

In the case of subject I K it will be noted that the volumes are uniformly less than in the cases of the other men. As this is true in the fore and after periods, as well as in the saccharin periods, it is in no way connected with the ingestion of saccharin. This lesser volume affects inversely the specific gravity of the urine and the precipitation of the solids in the urine.

Table 9.—*Average volume of urine per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Volume of urine.	Days of experiment.	Daily dose of saccharin.	Volume of urine.	Days of experiment.	Daily dose of saccharin.	Volume of urine.
	Grams.	*c. c.*		*Grams.*	*c. c.*		*Grams.*	*c. c.*
1– 7	0	862	1– 7	0	1,149	1– 7	0	866
8–14	0	755	8–14	0	1,217	8–14	0	1,100
Av., 14 days		809	Av., 14 days		1,183	Av., 14 days		983
15–21	0.3	782	15–21	0.3	1,502	15–21	0.3	1,227
22–28	.3	1,119	22–28	.3	1,750	22–28	.3	1,701
29–35	.3	887	29–35	.3	1,756	29–35	.3	1,322
Av., 21 days		929	Av., 21 days		1,669	Av., 21 days		1,417
36–42	.5	1,162	36–42	.5	1,680	36–42	.5	1,523
43–49	.5	1,137	43–49	.5	1,638	43–49	.5	1,357
50–56	.5	1,160	50–56	.5	1,522	50–56	.5	1,468
Av., 21 days		1,153	Av., 21 days		1,613	Av., 21 days		1,449
57–63	.75	1,082	57–63	.75	1,459	57–63	.75	1,741
64–68	.75	1,026	64–70	.75	1,594	64–70	.75	1,577
			71–77	.75	1,653	71–77	.75	1,520
Av., 12 days		1,059	78–82	.75	1,912			
69–75	0	1,022						
76–82	0	1,066						
Av., 14 days		1,044	Av., 26 days		1,635	Av., 21 days		1,613
83– 84	1.0	1,283	83– 91	1.0	1,356	78–84	1.0	1,716
85– 91	1.0	811	92– 98	1.0	1,570	85–91	1.0	1,700
92– 98	1.0	1,238	99–105	1.0	1,592	92–98	1.0	1,542
99–105	1.0	1,082						
Av., 23 days		1,064	Av., 23 days		1,493	Av., 21 days		1,653
106–112	1.5	998	106–112	1.5	1,632	99–105	1.5	1,785
			113–119	1.5	1,497	106–112	1.5	1,535
			120–126	1.5	1,522	113–119	1.5	1,432
			127–133	1.5	1,663	120–126	1.5	1,520
			134–140	1.5	1,578	127–133	1.5	1,644
			141–147	1.5	1,761	134–140	1.5	1,534
			148–150	1.5	1,773			
Av., 7 days		998	Av., 45 days		1,620	Av., 42 days		1,575
113–122	0	957	151–157	0	1,240	141–147	0	1,320
123–129	0	962	158–164	0	1,457	148–154	0	1,430
Av., 17 days		960	Av., 14 days		1,349	Av., 14 days		1,375

SPECIFIC GRAVITY.

The variations in the specific gravity of the urine correspond to the changes in volume and are all within normal limits, as can be seen from the table of daily records (Table 76) and the accompanying table of average specific gravity (Table 10). The extreme daily fluctuations are between 1.017 and 1.034. The variations in the average specific gravity for the different periods are too slight to be of significance. During all of the periods when saccharin was taken, the average specific gravity was less than during the fore and after periods. This corresponds with the increase in volume at that time. The fluctuation during the saccharin periods is irregular and does not bear any relation to the dose of saccharin. The slight lessening of the specific gravity during the saccharin periods is not due to a

decrease in the amount of solids excreted, for, as measured by the nitrogen, sulphur, and chlorine output, the excretion of solids was slightly increased during most of the saccharin periods. (See Tables 18, 24, and 31.)

The specific gravity of the urine in the case of Subject I K is uniformly higher than that of the other men.

TABLE 10.—*Average specific gravity of urine per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Specific gravity of urine.	Days of experiment.	Daily dose of saccharin.	Specific gravity of urine.	Days of experiment.	Daily dose of saccharin.	Specific gravity of urine.
	Grams.	*Sp. gr.*		*Grams.*	*Sp. gr.*		*Grams.*	*Sp. gr.*
1- 7	0	1 031	1- 7	0	1.025	1- 7	0	1.031
8-14	0	1.030	8-14	0	1.026	8-14	0	1.027
Av., 14 days	....	1.030	Av., 14 days	....	1.025	Av., 14 days	....	1.029
15-21	0.3	1.032	15-21	0.3	1.023	15-21	0.3	1.026
22-28	.3	1.028	22-28	.3	1.021	22-28	.3	1.021
29-35	.3	1.029	29-35	.3	1.021	29-35	.3	1.026
Av., 21 days	....	1.030	Av., 21 days	....	1.022	Av., 21 days	....	1.024
36-42	.5	1.025	36-42	.5	1.023	36-42	.5	1.023
43-49	.5	1.025	43-49	.5	1.024	43-49	.5	1.025
50-56	.5	1.027	50-56	.5	1.026	50-56	.5	1.025
Av., 21 days	....	1.026	Av., 21 days	....	1.024	Av., 21 days	....	1.024
57-63	.75	1.029	57-63	.75	1.024	57-63	.75	1.022
64-68	.75	1.029	64-70	.75	1.024	64-70	.75	1.022
			71-77	.75	1.024	71-77	.75	1.026
Av., 12 days	....	1.029	78-82	.75	1.021			
69-75	0	1.029						
76-82	0	1.026						
Av., 14 days	....	1.028	Av., 26 days	....	1.023	Av., 21 days	....	1.023
83- 84	1.0	1.027	83- 91	1.0	1.027	78-84	1.0	1.022
85- 91	1.0	1.033	92- 98	1.0	1.024	85-91	1.0	1.020
92- 98	1.0	1.027	99-105	1.0	1.024	92-98	1.0	1.024
99-105	1.0	1.027						
Av., 23 days	....	1.029	Av., 2 days	....	1.025	Av., 21 days	....	1.022
106-112	1.5	1.031	106-112	1.5	1.025	99-105	1.5	1.021
			113-119	1.5	1.025	106-112	1.5	1.022
			120-126	1.5	1.024	113-119	1.5	1.023
			127-133	1.5	1.022	120-126	1.5	1.021
			134-140	1.5	1.024	127-133	1.5	1.021
			141-147	1.5	1.023	134-140	1.5	1.020
			148-150	1.5	1.024			
Av., 7 days	....	1.031	Av., 45 days	....	1.024	Av., 42 days	....	1.021
113-122	0	1.031	151-157	0	1.027	141-147	0	1.024
123-129	0	1.030	158-164	0	1.026	148-154	0	1.021
Av., 17 days	....	1.031	Av., 14 days	....	1.026	Av., 14 days	....	1.022

AROMATIC OXYACIDS AND INDOLACETIC ACID.

Observations were made to discover whether the ingestion of saccharin affected the digestion so as to lead to an increase in the putrefactive processes of the intestine. Tests were made in the urine for evidence of certain putrefactive products which may be absorbed from the intestine and excreted in combined form from the

kidney, as aromatic oxyacids, indolacetic acid, indican, and ethereal sulphates.

Tests for the presence of aromatic oxyacids and indolacetic acid were regularly made in ethereal extracts from acidified specimens of the urine. Tables 11 and 12 record the results of the various observations, the daily observations of Table 11 being recorded in the form of averages in Table 12.

TABLE 11.—*Record of observations of aromatic oxyacids and indolacetic acid in the urine.*

SUBJECT I K.

Days of experiment.	Daily dose of saccharin.	Aromatic oxyacids.						Indolacetic acid.					
		Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.
	Gms.												
1–2	0						+				+		
3–5	0				+					+			
6–7	0		+						+				
8–9	0						+		+				
10–12	0										+		
13–14	0				+						+		
15–16	0.3						+						+
17–19	.3						+						+
20–21	.3				+								+
22–23	.3		+								+		
24–26	.3			+						+			
27–28	.3		+								+		
29–30	.3		+						+				
31–33	.3		+						+				
34–35	.3		+								+		
36–37	.5				+				+				
38–40	.5				+						+		
41–42	.5				+							+	
43–44	.5		+							+			
45–47	.5		+										+
48–49	.5						+						+
50–51	.5						+						+
52–54	.5		+									+	
55–56	.5						+				+		
57–58	.75						+						+
59–61	.75						+				+		
62–63	.75				+					+			
64–65	.75		+						+				
66–68	.75						+			+			
69–70	0		+								+		
71–72	0					+				+			
73–75	0						+				+		
76–77	0						+					+	
78–79	0					+						+	
80–82	0						+						+
83–84	1.0						+					+	
85–86	1.0						+					+	
87–89	1.0						+			+			
90–91	1.0						+			+			
92–93	1.0					+					+		
94–96	1.0						+					+	
97–98	1.0						+					+	
99–100	1.0					+				+			
101–103	1.0						+				+		
104–105	1.0						+				+		
106–107	1.5					+						+	
108–110	1.5					+						+	
111–112	1.5						+					+	
113–114	0						+						+
115–117	0						+					+	
118–119	0					+				+			
120–121	0					+					+		
122	0					+			+				
123–124	0						+			+			
125–126	0					+				+			
127–129	0				+				+				

TABLE 11.—*Record of observations of aromatic oxyacids and indolacetic acid in the urine*—Continued.

SUBJECT II O.

Days of experiment.	Daily dose of saccharin.	Aromatic oxyacids.						Indolacetic acid.					
		Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.
	Gms.												
1-2	0				+				+				
3-5	0		+						+				
6-7	0	+							+				
8-9	0		+						+				
10-12	0									+			
13-14	0		+								+		
15-16	0.3		+								+		
17-19	.3				+						+		
20-21	.3				+						+		
22-23	.3		+						+				
24-26	.3		+						+				
27-28	.3				+						+		
29-30	.3		+								+		
31-33	.3	+							+				
34-35	.3		+								+		
36-37	.5		+						+				
38-40	.5			+								+	
41-42	.5		+										+
43-44	.5		+									+	
45-47	.5		+										+
48-49	.5		+								+		
50-51	.5		+								+		
52-54	.5					+				+			
55-56	.5						+			+			
57-58	.75						+					+	
59-61	.75						+				+		
62-63	.75		+							+			
64-65	.75						+					+	
66-68	.75			+								+	
69-70	.75					+					+		
71-72	.75				+						+		
73-75	.75					+					+		
76-77	.75						+					+	
78-79	.75				+					+			
80-82	.75				+				+				
83-84	1.0					+					+		
85-86	1.0						+				+		
87-89	1.0						+			+			
90-91	1.0				+				+				
92-93	1.0					+					+		
94-96	1.0					+					+		
97-98	1.0					+						+	
99-100	1.0						+			+			
101-103	1.0						+				+		
104-105	1.0					+					+		
106-107	1.5						+				+		
108-110	1.5					+					+		
111-112	1.5						+				+		
113-114	1.5					+						+	
115-117	1.5						+				+		
118-119	1.5						+				+		
120-121	1.5												
122-124	1.5												
125-126	1.5				+						+		
127-128	1.5					+				+			
129-131	1.5												
132-133	1.5			+							+		
134-135	1.5			+						+			
136-138	1.5					+					+		
139-140	1.5				+							+	
141-142	1.5		+								+		
143-145	1.5			+							+		
146-147	1.5			+							+		
148-150	1.5				+							+	
151-152	0					+					+		
153-154	0					+						+	
155-157	0						+			+			
158-159	0			+					+				
160-161	0					+						+	
162-164	0				+				+				

TABLE 11.—*Record of observations of aromatic oxyacids and indolacetic acid in the urine*—Continued.

SUBJECT III N.

Days of experiment.	Daily dose of saccharin.	Aromatic oxyacids.						Indolacetic acid.					
		Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.
	Gms.												
1–2	0		+								+		
3–4	0		+								+		
5–7	0				+						+		
8–9	0				+				+				
10–11	0		+								+		
12–14	0		+						+				
15–16	0.3		+						+				
17–18	.3	+								+			
19–21	.3				+				+				
22–23	.3	+								+			
24–25	.3		+						+				
26–28	.3		+							+			
29–30	.3		+							+			
31–32	.3		+								+		
33–35	.3				+				+				
36–37	.5		+						+				
38–39	.5		+								+		
40–42	.5		+						+				
43–44	.5			+					+				
45–46	.5				+						+		
47–49	.5			+						+			
50–51	.5				+				+				
52–53	.5					+				+			
54–56	.5					+				+			
57–58	.75					+				+			
59–60	.75			+						+			
61–63	.75			+					+				
64–65	.75			+							+		
66–67	.75		+						+				
68–70	.75				+				+				
71–72	.75			+					+				
73–74	.75				+				+				
75–77	.75				+				+				
78–79	1.0		+					+					
80–81	1.0			+					+				
82–84	1.0				+					+			
85–86	1.0			+					+				
87–88	1.0			+						+			
89–91	1.0				+					+			
92–93	1.0				+				+				
94–95	1.0			+						+			
96–98	1.0			+						+			
99–100	1.5					+				+			
101–102	1.5				+						+		
103–105	1.5			+						+			
106–107	1.5				+				+				
108–109	1.5		+						+				
110–112	1.5			+					+				
113–114	1.5		+							+			
115–116	1.5			+					+				
117–119	1.5		+					+					
120–121	1.5		+							+			
122–123	1.5		+						+				
124–126	1.5			+					+				
127–128	1.5		+						+				
129–130	1.5		+						+				
131–133	1.5			+					+				
134–135	1.5			+					+				
136–137	1.5			+						+			
138–140	1.5		+						+				
141–142	0			+							+		
143–144	0				+					+			
145–147	0		+							+			
148–149	0			+					+				
150–151	0		+						+				
152–154	0			+					+				

TABLE 12.—*Average of observations of aromatic oxyacids and indolacetic acid in the urine.*

SUBJECT I K.

Days of experiment.	Daily dose of saccharin.	Aromatic oxyacids. Total number of observations.	Observations recorded as follows: Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Average.	Indolacetic acid. Total number of observations.	Observations recorded as follows: Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Average.
	Grms.																
1–14	0	5		1		2		2	Moderate	6		2	1	3			Slight to moderate.
15–35	0.3	9		5	1	1		2	Slight to moderate.	9		2	1	3		3	Moderate.
36–56	.5	9		3		3		3	Moderate	9		1	1	2	2	3	Moderate to strong.
57–68	.75	5		1		1		3	Slight to moderate.	5		1	2	1		1	Moderate.
69–82	0	6		1			2	3	Moderate to strong	6			1	2	2	1	Do.
83–105	1.0	10					2	8	Strong	10			3	3	4		Do.
106–112	1.5	3					2	1	Moderate to strong	3					3		Moderate to strong.
113–129	0	8				1	4	3	....do	8		2	3	1	1	1	Slight to moderate.

SUBJECT II O.

Days of experiment.	Daily dose of saccharin.	Aromatic oxyacids. Total number of observations.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Average.	Indolacetic acid. Total number of observations.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Average.
1–14	0	5	1	3		1			Slight	6		4	1	1			Slight.
15–35	0.3	9	1	5		3			Slight to moderate.	9		3		6			Slight to moderate.
36–56	.5	9		6	1		1	1	....do	9		1	2	2	2	2	Moderate.
57–82	.75	11		1	1	3	2	4	Moderate to strong	11		1	2	4	4		Do.
83–105	1.0	10				1	5	4	....do	10		1	2	6	1		Do.
106–150	1.5	16		1	4	3	4	4	Moderate	16			2	11	3		Do.
151–164	0	6			1	1	3	1	Moderate to strong	6		2	1	1	2		Slight to moderate.

SUBJECT III N.

Days of experiment.	Daily dose of saccharin.	Aromatic oxyacids. Total number of observations.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Average.	Indolacetic acid. Total number of observations.	Negative.	Slight.	Slight to moderate.	Moderate.	Moderate to strong.	Strong.	Average.
1–14	0	6		4		2			Slight to moderate.	6		2		4			Slight to moderate.
15–35	0.3	9	2	5		2			Slight	9		4	4	1			Do.
36–56	.5	9		3	2	2	2		Slight to moderate.	9		4	3	2			Do.
57–77	.75	9		1	4	3	1		....do	9		6	2	1			Slight.
78–98	1.0	9		1	5	3			Moderate	9	1	3	5				Do.
99–140	1.5	18		8	7	2	1		Slight to moderate.	18	1	11	5	1			Do.
141–154	0	6		2	3	1			....do	6		3	2	1			Slight to moderate.

AROMATIC OXYACIDS.

From a study of the tables, and especially the table of averages for the different periods, it will be seen that in the cases of subjects I K and II O the aromatic oxyacids increased under the administration of saccharin. In the case of subject III N there was a gradual increase through the saccharin periods until the last period with the highest dosage, when the reaction for aromatic oxyacids again became less marked. This increase in the aromatic oxyacids corresponds to the increase in indican during the saccharin periods.

INDOLACETIC ACID.

In the cases of subjects I K and II O, the reaction for indolacetic acid in the ethereal extract from the urine became slightly less in the after period. This corresponds to the tendency to an increase in indican and aromatic oxyacids. In the case of subject III N the reaction for indolacetic acid became less marked during the highest saccharin dosage and slightly increased in the after period.

INDICAN.

The tests for indican made in the fore period show a small amount present in the urine of each of the subjects, giving a reading of about 10 on a scale in which a standard Fehling's solution equals 100. With the beginning of small doses of saccharin, the indican in the case of each subject became less and was absent or was present in only small amounts throughout the periods of increased saccharin dosage until the last period, when 1.5 grams of saccharin was taken daily. Under this largest dosage of saccharin the indican increased in the case of each subject. At the end of a week the weekly average had reached 9, the same as the average for the fore period, in the case of subject I K. In the subjects continuing the dosage of 1.5 grams of saccharin for a longer period the indican excretion continued to increase, reaching at the end of 45 days a mean daily reading of 85 in the case of subject II O and at the end of 42 days of 53 in the case of subject III N. (See Table 13.)

In the after period the amount of indican in the urine again became less, so that only a slight amount was excreted in the cases of subjects I K and III N, and a reading of 29 was found in the case of subject II O.

TABLE 13.—*Average amount of indican per day.*

[Standard Fehling's solution=100.]

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Indican reading.	Days of experiment.	Daily dose of saccharin.	Indican reading.	Days of experiment.	Daily dose of saccharin.	Indican reading.
	Grams.			*Grams.*			*Grams.*	
1-7	0	6	1-7	0	6	1-7	0	13
8-14	0	13	8-14	0	10	8-14	0	9
Av., 14 days	....	9	Av., 14 days	....	8	Av., 14 days	....	11
15-21	0.3	1	15-21	0.3	9	15-21	0.3	4
22-28	.3	0	22-28	.3	1	22-28	.3	0
29-35	.3	1	29-35	.3	2	29-35	.3	3
Av., 21 days	....	1	Av., 21 days	....	4	Av., 21 days	....	2
36-42	.5	0	36-42	.5	1	36-42	.5	0
43-49	.5	0	43-49	.5	0	43-49	.5	0
50-56	.5	0	50-56	.5	2	50-56	.5	2
Av., 21 days	....	0	Av., 21 days	....	1	Av., 21 days	....	1
57-63	.75	0	57-63	.75	2	57-63	.75	2
64-68	.75	0	64-70	.75	3	64-70	.75	1
			71-77	.75	4	71-77	.75	2
Av., 12 days	....	0	78-82	.75	6			
69-75	0	0						
76-82	0	4						
Av., 14 days	....	2	Av., 26 days	....	4	Av., 21 days	....	2
83-84	1.0	0	83-91	1.0	7	78-84	1.0	5
85-91	1.0	1	92-98	1.0	2	85-91	1.0	5
92-98	1.0	0	99-105	1.0	6	92-98	1.0	8
99-105	1.0	5						
Av., 23 days	....	2	Av., 23 days	....	5	Av., 21 days	....	6
106-112	1.5	9	106-112	1.5	13	99-105	1.5	34
			113-119	1.5	7	106-112	1.5	26
			120-126	1.5	10	113-119	1.5	17
			127-133	1.5	19	120-126	1.5	12
			134-140	1.5	16	127-133	1.5	31
			141-147	1.5	60	134-140	1.5	53
			148-150	1.5	85			
Av., 7 days	....	9	Av., 45 days	....	25	Av., 42 days	....	29
113-122	0	4	151-157	0	29	141-147	0	17
123-129	0	0	158-164	0	26	148-154	0	0
Av., 17 days	....	2	Av., 14 days	....	28	Av., 14 days	....	8

SACCHARIN.

Of the four accompanying tables, the first two (Tables 14 and 15) show the average amount of saccharin eliminated each day in the urine and the feces of the three subjects. In the third table (Table 16), the saccharin eliminated is compared with the saccharin ingested, while the fourth table (Table 17) shows the distribution of the ingested saccharin between the urine and the feces expressed in percentages. Attention should be drawn to the fact that the method of estimating the saccharin is of such a nature that it does not admit of the highest degree of accuracy, since it involves the formation of a colored compound by a complicated synthesis varying easily with the conditions,

and the final estimation is based on matching the solution obtained with the known standard in respect to intensity of color.

In viewing the results brought together in the third table (Table 16) it will be seen that the daily average elimination of saccharin in the excreta in the case of subject I K during the 21 days he was on the 0.3 gram dosage was 0.297 gram. During the 21 days he was on the 0.5 gram dosage he eliminated daily 0.498 gram of saccharin. The 12 days he took 0.75 gram of saccharin daily he eliminated 0.766 gram per day. The average daily elimination of saccharin in the urine and feces during the 23 days he took 1.0 gram of saccharin per day was 1.0 gram.

While he was on the highest dosage, namely, 1.5 grams per day, his average daily elimination of saccharin was 1.495 grams. In this case it seems clear that the saccharin is quickly eliminated from the body.

The results relating to subject II O are of a similar nature. During the three weeks he took 0.3 gram of saccharin per day his daily average elimination of saccharin was 0.314 gram. During the next three weeks, when he took 0.5 gram of saccharin per day, he eliminated on an average 0.493 gram of saccharin, as estimated in the urine and feces. During the period of 26 days when he took 0.75 gram of saccharin daily he eliminated in the excreta an average of 0.783 gram per day. The next period shows a somewhat like correspondence. The daily intake of saccharin for 23 days was 1.0 gram; the average daily output was 1.019 grams. During the next month and a half, when the subject took 1.5 grams of saccharin per day, his average elimination of saccharin for each day was 1.550 grams, as estimated in the urine and feces. It may be mentioned that the apparent elimination of slightly more saccharin than was ingested during some of the periods is obviously due to the inaccuracies inherent in the method of estimating saccharin. A slight error in the accuracy of the standard solution or a slight error in the matching of the final colored solutions could account for considerable variation in the calculated results. In the case of subject II O there seems to be no indication of retention of saccharin in the body.

The results relating to subject III N are more irregular. During the first three weeks, when his daily intake of saccharin was 0.3 gram, the daily average output was 0.273 gram; during the next three weeks his daily intake and his daily output were practically the same, he having taken 0.5 gram of saccharin per day and eliminated each day an average of 0.499. The average daily elimination of saccharin during the next three weeks, while he was taking 0.75 gram per day, was 0.729 gram. During the three weeks he took 1.0 gram of saccharin daily he eliminated in the excreta an average of 0.866 gram per day. During the last period of highest dosage, covering six weeks,

when the daily dose of saccharin was 1.5 grams, the daily average output, as estimated in the urine and feces, was 1.367 grams. In this case there is an apparent lag in the saccharin elimination during the two periods of high saccharin dosage.

From an examination of the table relating to the distribution of saccharin in the urine and feces (Table 17), as recorded in percentages of the saccharin ingested, it is seen that there is a fairly close resemblance between the cases of subjects I K and II O. In subject III N there is relatively less saccharin eliminated by the urine and relatively more by the feces than in the other subjects. In the case of subject I K there was a tendency toward a slightly greater relative elimination of saccharin by the urine as the saccharin dosage increased. This trend was not evident in regard to subjects II O and III N, the relation between the saccharin excreted by the urine and that excreted by the feces remaining fairly constant throughout the experiment. Looking at the results more in detail, during the first or 0.3-gram-saccharin period, subject I K eliminated in the urine 89 per cent of the ingested saccharin; subject II O, 90 per cent; and subject III N, 76 per cent. In the feces subject I K eliminated 10 per cent; subject II O, 14.3 per cent; and subject III N, 15 per cent of the ingested saccharin. The total output of saccharin by urine and feces for the period in the case of subject I K was 99 per cent of the saccharin taken; in subject II O, the total output was 104.3 per cent; and in subject III N it was 91 per cent. For the five saccharin periods, or for the whole time the men were on saccharin, the elimination of saccharin in the urine in the case of subject I K was 91.8 per cent of the saccharin ingested; in subject II O it was 90.4 per cent; and in subject III N it amounted to 76.4 per cent. During this whole period subject I K eliminated in the feces 8.3 per cent of the saccharin ingested; subject II O, 12.1 per cent; and subject III N, 16.7 per cent. The total output of saccharin as estimated by chemical analysis during the whole period in the case of subject I K was 100.1 per cent of the saccharin ingested; in subject II O, 102.5 per cent; and in subject III N, 93.1 per cent.

These results indicate a certain degree of individual variation. It is clear that the saccharin in the case of two of the subjects passed rapidly through the body, but in the case of the third there was an apparent lag during the last two saccharin periods. Individual variation is again marked in the difference in the amount of saccharin eliminated by the intestine. The amount eliminated by subject III N, for instance, was on an average double that in the case of subject I K.

TABLE 14.—*Average amount of saccharin in urine per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Saccharin in urine.	Days of experiment.	Daily dose of saccharin.	Saccharin in urine.	Days of experiment.	Daily dose of saccharin.	Saccharin in uirne.
	Grams.	*Grams.*		*Grams.*	*Grams.*		*Grams.*	*Grams.*
1–7	0	0	1–7	0	0	1–7	0	0
8–14	0	0	8–14	0	0	8–14	0	0
15–21	0.3	0.260	15–21	0.3	0.260	15–21	0.3	0.218
22–28	.3	.275	22–28	.3	.279	22–28	.3	.229
29–35	.3	.266	29–35	.3	.273	29–35	.3	.236
Av., 21 days	....	.267	Av., 21 days	....	.271	Av., 21 days	....	.228
36–42	.5	.457	36–42	.5	.449	36–42	.5	.412
43–49	.5	.462	43–49	.5	.423	43–49	.5	.378
50–56	.5	.421	50–56	.5	.430	50–56	.5	.416
Av., 21 days	....	.447	Av., 21 days	....	.434	Av., 21 days	....	.402
57–63	.75	.689	57–63	.75	.671	57–63	.75	.569
64–68	.75	.714	64–70	.75	.726	64–70	.75	.563
			71–77	.75	.681	71–77	.75	.636
Av., 12 days	....	.699	78–82	.75	.702			
69–75	0	....						
76–82	0	....						
Av., 14 days	....	....	Av., 26 days	....	.694	Av., 21 days	....	.589
83–84	1.0	.731	83–91	1.0	.879	78–84	1.0	.666
85–91	1.0	.944	92–98	1.0	.901	85–91	1.0	.706
92–98	1.0	.985	99–105	1.0	.955	92–98	1.0	.768
99–105	1.0	.965						
Av., 23 days	....	.944	Av., 23 days	....	.909	Av., 21 days	....	.713
06–112	1.5	1.393	106–112	1.5	1.264	99–105	1.5	1.054
			113–119	1.5	1.385	106–112	1.5	1.029
			120–126	1.5	1.433	113–119	1.5	1.072
			127–133	1.5	1.337	120–126	1.5	1.215
			134–140	1.5	1.407	127–133	1.5	1.207
			141–147	1.5	1.407	134–140	1.5	1.247
			148–150	1.5	1.398			
Av., 7 days	....	1.393	Av., 45 days	....	1.375	Av., 42 days	....	1.137
113–122	0	....	151–157	0	....	141–147	0	....
123–129	0	....	158–164	0	....	148–154	0	....

TABLE 15.—*Average amount of saccharin in feces per day.*

Subject I K.				Subject II O.				Subject III N.			
Days of experiment.	Number of days.	Daily dose of saccharin.	Saccharin in feces.	Days of experiment.	Number of days.	Daily dose of saccharin.	Saccharin in feces.	Days of experiment.	Number of days.	Daily dose of saccharin.	Saccharin in feces.
		Grams.	*Gram.*			*Grams.*	*Gram.*			*Grams.*	*Gram.*
15–35	21	0.3	0.030	15–35	21	0.3	0.043	15–35	21	0.3	0.045
36–56	21	.5	.051	36–56	21	.5	.059	36–56	21	.5	.097
57–68	12	.75	.067	57–82	26	.75	.089	57–77	21	.75	.140
83–105	23	1.0	.056	83–105	23	1.0	.110	78–98	21	1.0	.153
106–112	7	1.5	.102	106–150	45	1.5	.175	99–140	42	1.5	.230

TABLE 16.—*Saccharin in urine and feces, compared with saccharin ingested.*

SUBJECT I K.

Days of experiment.	Number of days.	Daily dose of saccharin.	Daily average. Saccharin in urine.	Saccharin in feces.	Saccharin in urine and feces.	Difference saccharin ingested and eliminated.
		Grams.	*Grams.*	*Gram.*	*Grams.*	*Gram.*
15–35	21	0.3	0.267	0.030	0.297	0.003
36–56	21	.5	.447	.051	.498	.002
57–68	12	.75	.699	.067	.766	− .016
83–105	23	1.0	.944	.056	1.000	.000
106–112	7	1.5	1.393	.102	1.495	.005

SUBJECT II O.

Days of experiment.	Number of days.	Daily dose of saccharin.	Saccharin in urine.	Saccharin in feces.	Saccharin in urine and feces.	Difference saccharin ingested and eliminated.
15–35	21	0.3	0.271	0.043	0.314	−0.014
36–56	21	.5	.434	.059	.493	.007
57–82	26	.75	.694	.089	.783	− .033
83–105	23	1.0	.909	.110	1.019	− .019
106–150	45	1.5	1.375	.175	1.550	− .050

SUBJECT III N.

Days of experiment.	Number of days.	Daily dose of saccharin.	Saccharin in urine.	Saccharin in feces.	Saccharin in urine and feces.	Difference saccharin ingested and eliminated.
15–35	21	0.3	0.228	0.045	0.273	0.027
36–56	21	.5	.402	.097	.499	.001
57–77	21	.75	.589	.140	.729	.021
78–98	21	1.0	.713	.153	.866	.134
99–140	42	1.5	1.137	.230	1.367	.133

TABLE 17.—*Distribution of saccharin in urine and feces.*

[Percentages of saccharin ingested.]

Subject I K.				Subject II O.				Subject III N.			
Daily dose of saccharin.	Saccharin in urine.	Saccharin in feces.	Saccharin in urine and feces.	Daily dose of saccharin.	Saccharin in urine.	Saccharin in feces.	Saccharin in urine and feces.	Daily dose of saccharin.	Saccharin in urine.	Saccharin in feces.	Saccharin in urine and feces.
Grams.	*Per ct.*	*Per ct.*	*Per ct.*	*Grams.*	*Per ct.*	*Per ct.*	*Per ct.*	*Grams.*	*Per ct.*	*Per ct.*	*Per ct.*
0.3	89.0	10.0	99.0	0.3	90.0	14.3	104.3	0.3	76.0	15.0	91.0
.5	89.4	10.2	99.6	.5	86.8	11.8	98.6	.5	80.4	19.4	99.8
.75	93.3	8.9	102.2	.75	92.5	11.9	104.4	.75	78.5	18.7	97.2
1.0	94.4	5.6	100.0	1.0	90.9	11.0	101.9	1.0	71.3	15.3	86.6
1.5	92.9	6.8	99.7	1.5	91.7	11.7	103.4	1.5	75.8	15.3	91.1
Av.	91.8	8.3	100.1	Av.	90.4	12.1	102.5	Av.	76.4	16.7	93.1

TOTAL NITROGEN.

The daily amount of total nitrogen in the urine fluctuated with the variation in the nitrogen of the food, but was in the case of each subject within the limits of normal. This can be seen in the table of daily records (Table 76). The average daily excretion of urinary nitrogen in the case of each subject as seen in the accompanying table was greater during each period when saccharin was taken than in the fore period or after period, excepting that in the first saccharin period

of subject I K and subject II O the amount was less than in the after period. This increase in the nitrogen of the urine during the saccharin periods was due to two factors, first, a greater ingestion of nitrogen in the food, and, second, a slightly greater average utilization of the nitrogen of the food with a relative decrease in the amount of nitrogen lost in the feces. This can be noted in the table of the utilization of nitrogen (Table 41, p. 86). This greater ingestion of nitrogen and diminished loss in the feces seem to be associated with a slight improvement in the general condition rather than with any specific action of saccharin and probably bear no perceptible relation to the use of saccharin.

TABLE 18.—*Average amount of total nitrogen in the urine per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Total nitrogen in urine.	Days of experiment.	Daily dose of saccharin.	Total nitrogen in urine.	Days of experiment.	Daily dose of saccharin.	Total nitrogen in urine.
	Grams.	*Grams.*		*Grams.*	*Grams.*		*Grams.*	*Grams.*
1–7	0	12.41	1–7	0	13.87	1–7	0	14.18
8–14	0	12.52	8–14	0	13.62	8–14	0	12.51
Av., 14 days		12.46	Av., 14 days		13.74	Av., 14 days		13.34
15–21	0.3	12.90	15–21	0.3	15.82	15–21	0.3	14.31
22–28	.3	15.06	22–28	.3	15.16	22–28	.3	15.72
29–35	.3	13.69	29–35	.3	15.75	29–35	.3	14.79
Av., 21 days		13.88	Av., 21 days		15.58	Av., 21 days		14.94
36–42	.5	14.67	36–42	.5	16.03	36–42	.5	15.03
43–49	.5	13.94	43–49	.5	16.49	43–49	.5	15.92
50–56	.5	13.82	50–56	.5	15.45	50–56	.5	14.89
Av., 21 days		14.14	Av., 21 days		15.99	Av., 21 days		15.28
57–63	.75	15.16	57–63	.75	15.80	57–63	.75	16.06
64–68	.75	14.64	64–70	.75	15.84	64–70	.75	15.36
Av., 12 days		14.94	71–77	.75	15.96	71–77	.75	16.43
69–75	0	12.17	78–82	.75	17.79			
76–82	0	13.85						
Av., 14 days		13.01	Av., 26 days		16.24	Av., 21 days		15.95
83–84	1.0	15.75	83–91	1.0	16.25	78–84	1.0	16.20
85–91	1.0	13.40	92–98	1.0	17.29	85–91	1.0	14.47
92–98	1.0	15.78	99–105	1.0	17.06	92–98	1.0	13.49
99–105	1.0	13.43						
Av., 23 days		14.34	Av., 23 days		16.81	Av., 21 days		14.72
106–112	1.5	14.19	106–112	1.5	18.40	99–105	1.5	14.38
			113–119	1.5	17.85	106–112	1.5	13.81
			120–126	1.5	15.58	113–119	1.5	14.63
			127–133	1.5	16.27	120–126	1.5	13.29
			134–140	1.5	15.86	127–133	1.5	14.98
			141–147	1.5	17.01	134–140	1.5	14.92
			148–150	1.5	16.82			
Av., 7 days		14.19	Av., 45 days		16.83	Av., 42 days		14.33
113–122	0	14.42	151–157	0	14.93	141–147	0	13.85
123–129	0	13.55	158–164	0	16.31	148–154	0	14.17
Av., 17 days		14.06	Av., 14 days		15.62	Av., 14 days		14.01

AMMONIA NITROGEN.

The average amount of ammonia nitrogen excreted in the urine during the different periods of the experiment varied within narrow limits in the case of each subject, as may be seen from Table 19. The varying dosage of saccharin had no evident influence upon the amount of ammonia nitrogen excreted in the urine.

TABLE 19.—*Average amount of ammonia nitrogen per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Ammonia nitrogen.	Days of experiment.	Daily dose of saccharin.	Ammonia nitrogen.	Days of experiment.	Daily dose of saccharin.	Ammonia nitrogen.
	Grams.	*Grams.*		*Grams.*	*Grams.*		*Grams.*	*Grams.*
1–7	0	0.456	1–7	0	0.811	1–7	0	0.645
8–14	0	.529	8–14	0	.776	8–14	0	.614
Av., 14 days		.493	Av., 14 days		.794	Av., 14 days		.630
15–21	0.3	.501	15–21	0.3	.748	15–21	0.3	.653
22–28	.3	.529	22–28	.3	.713	22–28	.3	.611
29–35	.3	.518	29–35	.3	.743	29–35	.3	.590
Av., 21 days		.516	Av., 21 days		.735	Av., 21 days		.618
36–42	.5	.556	36–42	.5	.774	36–42	.5	.644
43–49	.5	.509	43–49	.5	.806	43–49	.5	.679
50–56	.5	.575	50–56	.5	.717	50–56	.5	.623
Av., 21 days		.547	Av., 21 days		.766	Av., 21 days		.649
57–63	.75	.643	57–63	.75	.793	57–63	.75	.621
64–68	.75	.710	64–70	.75	.841	64–70	.75	.601
			71–77	.75	.763	71–77	.75	.691
Av., 12 days		.671	78–82	.75	.705			
69–75	0	.375						
76–82	0	.521						
Av., 14 days		.448	Av., 26 days		.781	Av., 21 days		.638
83–84	1.0	.557	83–91	1.0	.842	78–84	1.0	.663
85–91	1.0	.565	92–98	1.0	.718	85–91	1.0	.611
92–98	1.0	.625	99–105	1.0	.846	92–98	1.0	.590
99–105	1.0	.440						
Av., 23 days		.544	Av., 23 days		.803	Av., 21 days		.621
106–112	1.5	.580	106–112	1.5	.830	99–105	1.5	.595
			113–119	1.5	.803	106–112	1.5	.694
			120–126	1.5	.920	113–119	1.5	.633
			127–133	1.5	.910	120–126	1.5	.596
			134–140	1.5	.911	127–133	1.5	.599
			141–147	1.5	.839	134–140	1.5	.695
			148–150	1.5	.832			
Av., 7 days		.580	Av., 45 days		.866	Av., 42 days		.635
113–122	0	.495	151–157	0	.696	141–147	0	.617
123–129	0	.476	158–164	0	.884	148–154	0	.616
Av., 17 days		.486	Av., 14 days		.790	Av., 14 days		.617

URIC ACID NITROGEN.

Variations in the amounts of uric acid nitrogen throughout the experiment were in the cases of all the men within too narrow limits to be of any significance. With the increase in food ingested and of total nitrogen excreted there was a slight increase in the absolute amounts of uric acid in the urine, but the relation of uric acid nitrogen to total urinary nitrogen was almost uniform in the daily averages for the different periods. There is no evidence that the taking of saccharin in the dosage given appreciably affected the amount of uric acid in the urine.

TABLE 20.—*Average amount of uric acid nitrogen per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Uric-acid nitrogen.	Days of experiment.	Daily dose of saccharin.	Uric-acid nitrogen.	Days of experiment.	Daily dose of saccharin.	Uric-acid nitrogen.
	Grams.	*Gram.*		*Grams.*	*Gram.*		*Grams.*	*Gram.*
1–7	0	0.161	1–7	0	0.166	1–7	0	0.202
8–14	0	.152	8–14	0	.205	8–14	0	.180
Av., 14 days		.156	Av., 14 days		.185	Av., 14 days		.191
15–21	0.3	.167	15–21	0.3	.231	15–21	0.3	.219
22–28	.3	.182	22–28	.3	.210	22–28	.3	.203
29–35	.3	.185	29–35	.3	.216	29–35	.3	.217
Av., 21 days		.178	Av., 21 days		.219	Av., 21 days		.213
36–42	.5	.198	36–42	.5	.200	36–42	.5	.183
43–49	.5	.181	43–49	.5	.219	43–49	.5	.238
50–56	.5	.190	50–56	.5	.199	50–56	.5	.191
Av., 21 days		.190	Av., 21 days		.206	Av., 21 days		.204
57–63	.75	.202	57–63	.75	.215	57–63	.75	.213
64–68	.75	.216	64–70	.75	.214	64–70	.75	.206
			71–77	.75	.205	71–77	.75	.206
Av., 12 days		.208	78–82	.75	.230			
69–75	0	.182						
76–82	0	.201						
Av., 14 days		.191	Av., 26 days		.215	Av., 21 days		.208
83–84	1.0	.246	83–91	1.0	.238	78–84	1.0	.206
85–91	1.0	.188	92–98	1.0	.236	85–91	1.0	.211
92–98	1.0	.217	99–105	1.0	.234	92–98	1.0	.206
99–105	1.0	.219						
Av., 23 days		.211	Av., 23 days		.236	Av., 21 days		.208
106–112	1.5	.221	106–112	1.5	.281	99–105	1.5	.187
			113–119	1.5	.259	106–112	1.5	.196
			120–126	1.5	.234	113–119	1.5	.203
			127–133	1.5	.225	120–126	1.5	.178
			134–140	1.5	.222	127–133	1.5	.190
			141–147	1.5	.252	134–140	1.5	.209
			148–150	1.5	.250			
Av., 7 days		.221	Av., 45 days		.246	Av., 42 days		.194
113–122	0	.211	151–157	0	.209	141–147	0	.205
123–129	0	.200	158–164	0	.218	148–154	0	.177
Av., 17 days		.206	Av., 14 days		.213	Av., 14 days		.191

RELATION OF NITROGEN OF AMMONIA AND URIC ACID TO THE TOTAL URINARY NITROGEN.

Tables 21 and 22 show the daily and average relation of ammonia nitrogen and uric acid nitrogen to the total nitrogen of the urine. As seen from the second table (Table 22), the average percentage of ammonia nitrogen varied in the case of subject I K between the limits 3.4 and 4.5; in the case of subject II O, between the limits 4.7 and 5.8; and in the case of subject III N, between the limits 4 and 4.8. These variations are within normal limits.

In regard to the relation of uric acid nitrogen to the total nitrogen in the case of subject I K, the averages of the periods varied between 1.3 and 1.6 per cent; in the case of subject II O, between 1.3 and 1.5 per cent; and in the case of subject III N, between 1.3 and 1.5 per cent. These variations are without significance.

The normal relation between the nitrogen of ammonia and uric acid and the total nitrogen of the urine is therefore apparently not affected by the taking of saccharin.

TABLE 21.—*Daily relation of the nitrogen of ammonia and uric acid to the total nitrogen in the urine.*

[Percentages of total nitrogen.]

Subject I K.				Subject II O.				Subject III N.			
Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.	Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.	Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.
	Gram.	*Per ct.*	*Per ct.*		*Gram.*	*Per ct.*	*Per ct.*		*Gram.*	*Per ct.*	*Per ct.*
1–2......	0	3.5	1.5	1–2.....	0	5.0	1.1	1–2.....	0	5.1	1.4
3–5......	0	3.6	1.2	3–5.....	0	6.2	1.2	3–4.....	0	4.6	1.5
6–7......	0	4.0	1.4	6–7.....	0	6.1	1.4	5–7.....	0	4.2	1.3
8–9......	0	3.8	1.1	8–9.....	0	6.0	1.7	8–9.....	0	5.5	1.5
10–12....	0	4.1	1.3	10–12...	0	6.0	1.2	10–11...	0	4.3	1.3
13–14....	0	5.0	1.3	13–14...	0	5.0	1.7	12–14...	0	5.0	1.5
15–16....	0.3	4.5	1.3	15–16...	0.3	4.5	1.5	15–16...	0.3	5.1	1.3
17–19....	.3	3.8	1.3	17–19...	.3	4.8	1.4	17–18...	.3	3.9	1.6
20–21....	.3	3.3	1.3	20–21...	.3	5.0	1.5	19–21...	.3	4.8	1.6
22–23....	.3	3.7	1.1	22–23...	.3	4.6	1.5	22–23...	.3	4.5	1.4
24–26....	.3	3.3	1.2	24–26...	.3	4.8	1.2	24–25...	.3	3.7	1.4
27–28....	.3	3.6	1.3	27–28...	.3	4.8	1.5	26–28...	.3	3.6	1.2
29–30....	.3	3.9	1.3	29–30...	.3	5.1	1.2	29–30...	.3	4.6	1.4
31–33....	.3	3.8	1.4	31–33...	.3	5.1	1.3	31–32...	.3	3.4	1.5
34–35....	.3	3.6	1.4	34–35...	.3	3.9	1.6	33–35...	.3	3.9	1.5
36–37....	.5	4.2	1.2	36–37...	.5	4.8	1.2	36–37...	.5	5.0	1.1
38–40....	.5	3.7	1.5	38–40...	.5	5.0	1.2	38–39...	.5	4.2	1.3
41–42....	.5	3.6	1.3	41–42...	.5	4.7	1.5	40–42...	.5	3.9	1.2
43–44....	.5	3.6	1.2	43–44...	.5	5.0	1.3	43–44...	.5	4.4	1.3
45–47....	.5	3.7	1.4	45–47...	.5	4.9	1.2	45–46...	.5	4.1	1.4
48–49....	.5	3.7	1.2	48–49...	.5	4.7	1.4	47–49...	.5	4.3	1.7
50–51....	.5	4.2	1.1	50–51...	.5	4.5	1.4	50–51...	.5	4.6	1.4
52–54....	.5	4.0	1.5	52–54...	.5	4.8	1.1	52–53...	.5	3.9	1.3
55–56....	.5	4.6	1.6	55–56...	.5	4.6	1.4	54–56...	.5	4.1	1.2
57–58....	.75	4.0	1.5	57–58...	.75	4.6	1.3	57–58...	.75	3.0	1.6
59–61....	.75	4.4	1.5	59–61...	.75	5.2	1.3	59–60...	.75	4.0	1.3
62–63....	.75	4.2	1.0	62–63...	.75	5.3	1.5	61–63...	.75	4.6	1.1
64–65....	.75	5.2	1.3	64–65...	.75	5.6	1.6	64–65...	.75	4.1	1.4
66–68....	.75	4.6	1.6	66–68...	.75	5.8	1.2	66–67...	.75	4.4	1.4
				69–70...	.75	4.4	1.4	68–70...	.75	3.3	1.2

TABLE 21.—*Daily relation of the nitrogen of ammonia and uric acid to the total nitrogen in the urine*—Continued.

Subject I K.				Subject II O.				Subject III N.			
Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.	Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.	Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.
	Grams.	*Per ct.*	*Per ct.*		*Grams.*	*Per ct.*	*Per ct.*		*Grams.*	*Per ct.*	*Per ct.*
69–70....	0	3.3	1.7	71–72...	0.75	4.3	1.2	71–72...	0.75	4.6	1.5
71–72....	0	2.4	1.5	73–75...	.75	4.8	1.2	73–74...	.75	4.3	.9
73–75....	0	3.4	1.4	76–77...	.75	5.2	1.4	75–77...	.75	3.9	1.4
76–77....	0	4.0	1.6	78–79...	.75	4.5	1.3				
78–79....	0	3.7	1.3	80–82...	.75	3.6	1.3				
80–82....	0	3.6	1.5								
83–84....	1.0	3.5	1.6	83–84...	1.0	5.3	1.7	78–79...	1.0	4.3	.9
85–86....	1.0	4.1	1.5	85–86...	1.0	4.9	1.3	80–81...	1.0	4.1	1.5
87–89....	1.0	4.8	1.5	87–89...	1.0	5.9	1.3	82–84...	1.0	3.9	1.4
90–91....	1.0	3.5	1.2	90–91...	1.0	4.4	1.6	85–86...	1.0	4.1	1.4
92–93....	1.0	3.6	1.3	92–93...	1.0	3.9	1.3	87–88...	1.0	4.7	1.5
94–96....	1.0	4.2	1.3	94–96...	1.0	4.1	1.3	89–91...	1.0	3.9	1.5
97–98....	1.0	4.0	1.6	97–98...	1.0	4.4	1.5	92–93...	1.0	4.4	1.5
99–100...	1.0	3.7	1.6	99–100..	1.0	5.7	1.3	94–95...	1.0	4.6	1.4
101–103..	1.0	3.2	1.7	101–103.	1.0	4.7	1.3	96–98...	1.0	4.2	1.7
104–105..	1.0	3.0	1.6	104–105.	1.0	4.2	1.6				
106–107..	1.5	4.0	1.9	106–107.	1.5	5.1	1.4	99–100..	1.5	4.6	1.4
108–110..	1.5	4.2	1.4	108–110.	1.5	4.0	1.6	101–102.	1.5	4.1	1.1
111–112..	1.5	4.0	1.5	111–112.	1.5	4.8	1.6	103–105.	1.5	3.8	1.4
				113–114.	1.5	4.7	1.5	106–107.	1.5	4.4	1.2
				115–117.	1.5	5.1	1.5	108–109.	1.5	4.6	1.8
				118–119.	1.5	3.5	1.4	110–112.	1.5	5.8	1.4
				120–126.	1.5	5.9	1.5	113–114.	1.5	4.4	1.5
				127–133.	1.5	5.6	1.4	115–116.	1.5	4.1	1.3
				134–140.	1.5	5.7	1.4	117–119.	1.5	4.5	1.3
				141–142.	1.5	5.2	1.5	120–121.	1.5	4.5	1.5
				143–145.	1.5	4.9	1.5	122–123.	1.5	4.0	1.2
				146–147.	1.5	4.7	1.4	124–126.	1.5	4.8	1.3
				148–150.	1.5	4.9	1.5	127–133.	1.5	4.0	1.3
								134–135.	1.5	3.8	1.3
								136–137.	1.5	4.2	1.4
								138–140.	1.5	6.2	1.6
113–114..	0	2.9	1.5	151–152.	0	4.9	1.2	141–142.	0	4.3	1.5
115–117..	0	4.3	1.4	153–154.	0	6.1	1.5	143–144.	0	4.7	1.5
118–119..	0	3.2	1.6	155–157.	0	3.5	1.5	145–147.	0	4.4	1.5
120–121..	0	4.0	1.5	158–159.	0	5.6	1.2	148–149.	0	4.6	1.2
122......	0	3.5	1.4	160–161.	0	5.3	1.4	150–151.	0	3.9	1.3
123–124..	0	3.2	1.3	162–164.	0	5.5	1.4	152–154.	0	4.5	1.2
125–126..	0	3.7	1.5								
127–129..	0	3.6	1.6								

TABLE 22.—*Average relation of the nitrogen of ammonia and uric acid to the total nitrogen in urine.*

[Percentages of total nitrogen.]

Subject I K.			
Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.
	Gms.	*P. ct.*	*P. ct.*
1–7	0	3.7	1.3
8–14	0	4.3	1.2
Av., 14 days.	......	4.0	1.3
15–21	0.3	3.9	1.3
22–28	.3	3.5	1.2
29–35	.3	3.8	1.4
Av., 21 days.	......	3.7	1.3
36–42	.5	3.8	1.4
43–49	.5	3.7	1.3
50–56	.5	4.2	1.4
Av., 21 days.	......	3.9	1.4
57–63	.75	4.2	1.4
64–68	.75	4.8	1.5
Av., 12 days.	......	4.5	1.4
69–75	0	3.1	1.5
76–82	0	3.7	1.5
Av., 14 days.	......	3.4	1.5
83–84	1.0	3.5	1.6
85–91	1.0	4.2	1.4
92–98	1.0	4.0	1.4
99–105	1.0	3.3	1.6
Av., 23 days.	......	3.8	1.5
106–112	1.5	4.1	1.6
Av., 7 days.	......	4.1	1.6
113–122	0	3.7	1.4
123–129	0	3.5	1.5
Av., 14 days.	......	3.6	1.5

Subject II O.			
Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.
	Gms.	*P. ct.*	*P. ct.*
1–7	0	5.8	1.2
8–14	0	5.7	1.5
Av., 14 days.	......	5.8	1.4
15–21	0.3	4.8	1.5
22–28	.3	4.7	1.4
29–25	.3	4.8	1.4
Av., 21 days.	......	4.8	1.4
36–42	.5	4.9	1.3
43–49	.5	4.9	1.3
50–56	.5	4.7	1.3
Av., 21 days.	......	4.8	1.3
57–63	.75	5.1	1.4
64–70	.75	5.3	1.4
71–77	.75	4.8	1.3
78–82	.75	4.0	1.3
Av., 26 days.	......	4.9	1.4
83–91	1.0	5.2	1.5
92–98	1.0	4.1	1.4
99–105	1.0	4.8	1.4
Av., 23 days.	......	4.7	1.4
106–112	1.5	4.5	1.5
113–119	1.5	4.5	1.5
120–126	1.5	5.9	1.5
127–133	1.5	5.6	1.4
134–140	1.5	5.7	1.4
141–147	1.5	4.9	1.5
148–150	1.5	4.9	1.5
Av., 45 days.	......	5.2	1.5
151–157	0	4.6	1.4
158–164	0	5.5	1.3
Av., 14 days.	......	5.1	1.4

Subject III N.			
Days of experiment.	Daily dose of saccharin.	Nitrogen of ammonia.	Nitrogen of uric acid.
	Gms.	*P. ct.*	*P. ct.*
1–7	0	4.6	1.4
8–14	0	4.9	1.4
Av., 14 days.	......	4.8	1.4
15–21	0.3	4.6	1.5
22–28	.3	3.9	1.3
29–35	.3	4.0	1.5
Av., 21 days.	......	4.2	1.4
36–42	.5	4.3	1.2
43–49	.5	4.3	1.5
50–56	.5	4.2	1.3
Av., 21 days.	......	4.3	1.3
57–63	.75	4.0	1.3
64–70	.75	3.8	1.3
71–77	.75	4.2	1.3
Av., 21 days.	......	4.0	1.3
78–84	1.0	4.1	1.3
85–91	1.0	4.2	1.5
92–98	1.0	4.4	1.6
Av., 21 days.	......	4.2	1.5
99–105	1.5	4.1	1.3
106–112	1.5	5.1	1.5
113–119	1.5	4.4	1.4
120–126	1.5	4.5	1.3
127–133	1.5	4.0	1.3
134–140	1.5	4.9	1.4
Av., 42 days.	......	4.5	1.4
141–147	0	4.5	1.5
148–154	0	4.4	1.2
Av., 14 days.	......	4.5	1.4

SULPHUR.

The question whether the production and output of the various forms of sulphur in the urine resulting from normal metabolism has been influenced by the taking of saccharin is rendered somewhat complicated by the fact that saccharin itself contains sulphur. The results relating to the various forms of sulphur of the urine have been calculated and expressed in various relations, taking into account the sulphur of saccharin appearing in the urine, and deducting this urinary saccharin sulphur from the various values actually

found by analysis in an attempt to ascertain to what extent, if any, the various forms of sulphur as estimated in the urine were affected by the ingestion of saccharin. After close inspection of the results thus expressed and tabulated the conclusion is drawn that neither the total sulphur, the organic sulphur, the ethereal sulphur, nor the neutral sulphur is influenced in any tangible degree by the doses of saccharin taken. Although the results thus appear to be negative, so far as any influence of saccharin is concerned, it seems desirable to present the series of tables from which this conclusion has been drawn.

In the series of tables which follow, Table 23 records in a compact form all the estimations of the various forms of sulphur of the urine made during the experiment. Table 24 is an expression of the same results in the form of averages. Table 25 shows those results in the form of percentages of total sulphur, indicating the distribution of the urinary sulphur, while Table 26 shows the same results averaged. The next two tables show the sulphur values after allowing for the urinary saccharin sulphur, the first (Table 27, in three parts), recording the sulphur results less the sulphur of the saccharin of the urine. In the same table the results thus obtained are expressed in the form of percentages, thus showing the daily distribution of sulphur in the urine, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur. These results are averaged and recorded in Tables 28 and 29.

Looking at the results somewhat in detail, the most striking feature in the first table (Table 23) is the continuous increase of the total and neutral sulphur values as the daily dose of saccharin increases. This feature is more prominently expressed in the second table (Table 24), showing the average amounts of the various forms of sulphur in the urine per day. The average neutral sulphur, for instance, eliminated by the three subjects before taking saccharin, amounted to 0.123, 0.163, 0.162 gram per day, while the average values for neutral sulphur during the highest saccharin period amounted to 0.364, 0.365, 0.303 gram per day, respectively. This striking increase is noted in the total sulphur, and owes its origin to the sulphur of saccharin in the urine. It may be mentioned in passing that all the sulphur of saccharin is oxidized and estimated by the method employed for estimating the total sulphur. (See footnote, p. 26.)

In the third table (Table 25), showing the daily distribution of sulphur in the urine, the effect of the urinary saccharin sulphur is again a prominent feature, showing itself in a continuously decreasing percentage of the inorganic sulphur of the total sulphur as the daily dose of saccharin increases, and on the other hand in a continuously increasing percentage of the neutral sulphur. This is more clearly seen in the next table (Table 26), showing the average distribution

of sulphur in the urine, where the average percentage of the inorganic sulphur of the total sulphur for the period before the men took saccharin was 78.4, 77.1, 78.6, and where during the highest saccharin period it decreased, respectively, to 65.0, 67.0, and 69.4. The average percentage of the neutral sulphur of the total sulphur increased for the three subjects from the fore period, when it was 13.5, 15.7, and 16.2, to the highest saccharin period, when the values became 28.6, 26.6, and 25.5, respectively. The influence of the sulphur of the saccharin of the urine is indicated in these results, and its disturbance as a factor in the study of the question whether the normal sulphur metabolism is affected by the ingestion of saccharin becomes apparent. Since the presence of the urinary saccharin sulphur would tend to cover up the true relationship existing between the other sulphur constituents of the urine an attempt has been made to arrive at an approximately true relationship of the usual urinary sulphur bodies, those resulting from metabolism, by calculating from the amount of saccharin found in the urine the sulphur it contains and subtracting this from the estimated total and neutral sulphur, since the sulphur of saccharin does not interfere with the determination of inorganic or ethereal sulphur.

It should be remembered, however, that the method of estimating the saccharin in the urine is beset with difficulties tending to diminish the accuracy of the result, and since the saccharin sulphur is subtracted from the estimated neutral sulphur, which at most is but a small value, and is arrived at by a method of difference, the number expressing the normal neutral sulphur of the urine is naturally subject to wide variation, the normal limits of experimental error being, under the circumstances, wide apart. The results obtained after allowing for the sulphur of the urinary saccharin are discussed more in detail in what follows.

Table 27 records the amounts of sulphur calculated from the saccharin found in the urine. These values are subtracted from the total and neutral sulphur as found by analysis and recorded in the previous table, and the results thus obtained, together with the inorganic and ethereal sulphur values, are brought together. In the same table are recorded the daily distribution or percentages of the various urinary sulphurs after thus applying the correction for the saccharin sulphur. These results are averaged and recorded in Tables 28 and 29. Since the averages are best adapted for simple comparison, discussion will be confined to these averages. It is seen that Table 28 embodies the daily average amount of total, inorganic, ethereal, and neutral sulphur in the urine after deducting the sulphur of the saccharin of the urine from the estimated total and neutral sulphur, and Table 29 records the distribution or percentages of the sulphur values thus obtained.

As seen from these tables, the variation of the various sulphur-containing bodies of the urine during the course of the experiment is but slight and falls well within the limits of normal variation. It is true that the neutral sulphur averages somewhat lower during the saccharin periods than during the fore or after periods, but when it is remembered that the neutral sulphur as estimated is subject to a wide normal variation, as already explained, these lower values can not be reasonably attributed to the influence of the saccharin ingested.

Viewing the results from the standpoint of percentages of total sulphur (Table 29), the average percentages of inorganic sulphur for the various periods for subject I K are seen to be 78.4, 81.4, 80.3, 80.6, 77.7, 80.3, 80.5, 76.7; for subject II O the values are 77.1, 81.0, 82.7, 81.5, 81.7, 81.6, 77.1; and for subject III N the values are 78.6, 84.2, 85.0, 84.3, 81.3, 83.4, 82.6. In the same way the average percentages of ethereal sulphur for the various periods for subject I K run 8.1, 7.3, 9.2, 8.2, 8.3, 7.8, 7.9, and 8.8; for subject II O they are 7.3, 7.7, 7.7, 7.9, 7.7, 7.7, 7.4; and for subject III N the values are 5.2, 6.5, 5.8, 5.2, 5.4, 6.1, and 5.2. The average percentages of the total sulphur as neutral sulphur for the various periods are seen to be for subject I K, 13.5, 11.3, 10.5, 11.2, 14.0, 11.9, 11.6, and 14.5; for subject II O, 15.8, 11.3, 9.6, 10.6, 10.6, 10.7, 15.5; for subject III N, 16.1, 9.3, 9.2, 10.5, 13.3, 10.5, 12.2.

During the saccharin period the percentages of organic sulphur as calculated and expressed in the table tend to be somewhat higher and of the neutral sulphur somewhat lower than the values for the fore and after periods, but inasmuch as the differences do not increase with increasing doses of saccharin, and as a rule are not marked, and since a small error in estimating the urinary saccharin sulphur would greatly disturb the percentage relationship as calculated and expressed in the table, it is believed that the variations are without significance, being within the limits of experimental error, and the conclusion is therefore drawn that the saccharin is without influence on the output of inorganic, ethereal, and neutral sulphur in the urine.

TABLE 23.—*Daily record of total, inorganic, ethereal, and neutral sulphur in the urine.*

Subject I K.

Day of experiment.	Daily dose of saccharin.	Sulphur. Total	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gram.	*Grams.*	*Gram.*	*Gram.*	*Gram.*
1–2	0	0.886	0.672	0.078	0.136
3–5	0	.921	.736	.070	.115
6–7	0	.974	.780	.073	.121
8–9	0	.913	.741	.054	.118
10–12	0	.922	.710	.088	.124
13–14	0	.866	.663	.078	.125
15–16	0.3	.981	.736	.075	.170
17–19	.3	.935	.714	.070	.151
20–21	.3	.967	.718	.072	.177
22–23	.3	1.080	.856	.068	.156
24–26	.3	1.100	.815	.073	.212
27–28	.3	1.114	.850	.083	.181
29–30	.3	.966	.738	.079	.149
31–33	.3	1.045	.845	.050	.150
34–35	.3	.984	.768	.077	.139
36–37	.5	1.135	.885	.075	.175
38–40	.5	1.090	.813	.084	.193
41–42	.5	1.175	.885	.100	.190
43–44	.5	1.032	.835	.076	.121
45–47	.5	1.058	.775	.068	.215
48–49	.5	1.063	.785	.102	.176
50–51	.5	1.209	.885	.125	.199
52–54	.5	1.108	.788	.122	.198
55–56	.5	.963	.703	.093	.167
57–58	.75	1.289	.935	.099	.255
59–61	.75	1.233	.915	.093	.225
62–63	.75	1.284	.944	.087	253
64–65	.75	1.210	.891	.093	.226
66–68	.75	1.220	.850	.090	.280
69–70	0	.874	.660	.076	.138
71–72	0	1.017	.815	.061	.141
73–75	0	.995	.782	.095	.118
76–77	0	.972	.759	.089	.124
78–79	0	1.155	.931	.094	.130
80–82	0	.944	.691	.075	.178

Subject II O.

Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gram.	*Grams.*	*Grams.*	*Gram.*	*Gram.*
1–2	0	0.985	0.780	0.066	0.139
3–5	0	1.064	.825	.068	.171
6–7	0	1.042	.834	.078	.130
8–9	0	.934	.715	.073	.146
10–12	0	1.032	.761	.091	.180
13–14	0	1.152	.884	.072	.196
15–16	0.3	1.210	.926	.089	.195
17–19	.3	1.185	.895	.099	.191
20–21	.3	1.085	.806	.082	.197
22–23	.3	1.109	.851	.081	.177
24–26	.3	1.138	.847	.069	.222
27–28	.3	1.140	.865	.101	.174
29–30	.3	1.128	.865	.086	.177
31–33	.3	1.117	.902	.089	.126
34–35	.3	1.145	.885	.057	.203
36–37	.5	1.245	.998	.075	.172
38–40	.5	1.113	.851	.115	.147
41–42	.5	1.225	.962	.080	.183
43–44	.5	1.163	.890	.080	.193
45–47	.5	1.263	.977	.084	.202
48–49	.5	1.190	.926	.074	.190
50–51	.5	1.213	.914	.083	.216
52–54	.5	1.127	.862	.089	.176
55–56	.5	1.152	.900	.082	.170
57–58	.75	1.299	.973	.095	.231
59–61	.75	1.175	.893	.087	.195
62–63	.75	1.151	.837	.082	.232
64–65	.75	1.200	.902	.078	.220
66–68	.75	1.231	.903	.088	.240
69–70	.75	1.349	1.005	.097	.247
71–72	.75	1.279	.970	.070	.239
73–75	.75	1.237	.928	.096	.213
76–77	.75	1.159	.843	.098	.218
78–79	.75	1.422	1.002	.098	.322
80–82	.75	1.340	.976	.094	.270

Subject III N.

Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gram.	*Grams.*	*Grams.*	*Gram.*	*Gram.*
1–2	0	0.999	0.791	0.059	0.149
3–4	0	1.480	1.178	.059	.243
5–7	0	.836	.657	.049	.130
8–9	0	.785	.625	.045	.115
10–11	0	.737	.592	.038	.107
12–14	0	1.175	.900	.057	.218
15–16	0.3	.945	.764	.043	.138
17–18	.3	1.268	1.045	.065	.158
19–21	.3	.939	.760	.071	.108
22–23	.3	1.308	1.073	.090	.145
24–25	.3	.985	.782	.041	.162
26–28	.3	1.125	.921	.090	.114
29–30	.3	1.380	1.163	.062	.155
31–32	.3	1.191	.911	.122	.158
33–35	.3	.931	.755	.044	.132
36–37	.5	1.185	.957	.074	.154
38–39	.5	1.152	.905	.090	.157
40–42	.5	1.124	.890	.057	.177
43–44	.5	1.128	.882	.055	.191
45–46	.5	1.445	1.182	.063	.200
47–49	.5	.979	.779	.046	.154
50–51	.5	1.279	1.010	.062	.207
52–53	.5	1.030	.815	.056	.159
54–56	.5	1.063	.858	.064	.141
57–58	.75	1.543	1.204	.088	.251
59–60	.75	.990	.764	.039	.187
61–63	.75	1.155	.886	.066	.203
64–65	.75	1.270	.995	.068	.207
66–67	.75	1.310	.995	.075	.240
68–70	.75	.980	.745	.047	.188
71–72	.75	1.125	.852	.053	.220
73–74	.75	1.358	1.029	.046	.283
75–77	.75	1.384	1.100	.057	.227

TABLE 23.—*Daily record of total, inorganic, ethereal, and neutral sulphur in the urine*—Continued.

Subject I K.						Subject II O.						Subject III N.					
Day of experiment.	Daily dose of saccharin.	Sulphur.				Day of experiment.	Daily dose of saccharin.	Sulphur.				Day of experiment.	Daily dose of saccharin.	Sulphur.			
		Total.	Inorganic.	Ethereal.	Neutral.			Total.	Inorganic.	Ethereal.	Neutral.			Total.	Inorganic.	Ethereal.	Neutral.
	Grams.	*Grams.*	*Grams.*	*Gram.*	*Gram.*		*Grams.*	*Grams.*	*Grams.*	*Gram.*	*Gram.*		*Grams.*	*Grams.*	*Grams.*	*Gram.*	*Gram.*
83–84	1.0	1.229	0.900	0.081	0.248	83–84	1.0	1.318	0.983	0.050	0.285	78–79	1.0	1.215	0.940	0.058	0.217
85–86	1.0	1.242	.910	.066	.266	85–86	1.0	1.305	.957	.082	.266	80–81	1.0	1.243	.927	.060	.256
87–89	1.0	1.038	.730	.075	.233	87–89	1.0	1.192	.858	.099	.235	82–84	1.0	1.212	.906	.067	.239
90–91	1.0	1.060	.742	.077	.241	90–91	1.0	1.298	.950	.100	.248	85–86	1.0	1.134	.820	.043	.271
92–93	1.0	1.270	.893	.083	.294	92–93	1.0	1.277	.889	.094	.294	87–88	1.0	1.267	.894	.061	.312
94–96	1.0	1.404	1.003	.108	.293	94–96	1.0	1.314	.947	.095	.272	89–91	1.0	1.120	.810	.065	.245
97–98	1.0	1.165	.834	.080	.251	97–98	1.0	1.402	1.044	.089	.269	92–93	1.0	1.230	.822	.046	.362
99–100	1.0	1.098	.659	.073	.366	99–100	1.0	1.299	.858	.096	.345	94–95	1.0	.997	.741	.039	.217
101–103	1.0	1.303	.851	.085	.367	101–103	1.0	1.315	.961	.092	.262	96–98	1.0	1.109	.778	.059	.272
104–105	1.0	1.208	.833	.067	.308	104–105	1.0	1.591	1.107	.100	.384						
106–107	1.5	1.197	.767	.079	.351	106–107	1.5	1.290	.914	.077	.299	99–100	1.5	1.180	.826	.060	.294
108–110	1.5	1.273	.842	.085	.346	108–110	1.5	1.530	1.028	.099	.403	101–102	1.5	1.473	.984	.069	.420
111–112	1.5	1.342	.860	.079	.403	111–112	1.5	1.505	1.021	.089	.395	103–105	1.5	1.043	.700	.047	.296
						113–114	1.5	1.620	1.134	.097	.389	106–107	1.5	1.440	1.038	.076	.326
						115–117	1.5	1.358	.885	.097	.376	108–109	1.5	.852	.607	.048	.197
						118–119	1.5	1.382	.949	.085	.348	110–112	1.5	1.072	.744	.072	.256
						120–126	1.5	1.279	.872	.083	.324	113–114	1.5	1.459	1.008	.085	.366
						127–133	1.5	1.385	.936	.091	.358	115–116	1.5	1.254	.960	.070	.224
						134–140	1.5	1.340	.905	.077	.358	117–119	1.5	.869	.627	.048	.194
						141–142	1.5	1.288	.838	.093	.357	120–121	1.5	1.081	.712	.061	.308
						143–145	1.5	1.400	.984	.091	.365	122–123	1.5	1.224	.857	.062	.305
						146–147	1.5	1.534	1.027	.106	.401	124–126	1.5	1.118	.745	.058	.315
						148–150	1.5	1.440	.907	.093	.440	127–133	1.5	1.313	.889	.048	.376
												134–135	1.5	1.433	1.017	.066	.350
												136–137	1.5	1.460	1.058	.071	.331
												138–140	1.5	.853	.577	.052	.224
113–114	0	1.231	.960	.091	.180	151–152	0	1.079	.849	.089	.141	141–142	0	1.019	.848	.051	.120
115–117	0	1.019	.737	.118	.164	153–154	0	1.060	.862	.073	.125	143–144	0	1.009	.802	.073	.134
118–119	0	1.111	.877	.083	.151	155–157	0	1.178	.908	.077	.193	145–147	0	1.028	.840	.054	.134
120–121	0	.898	.696	.086	.116	158–159	0	1.154	.866	.107	.181	148–149	0	.992	.827	.049	.116
122	0	.785	.595	.080	.110	160–161	0	1.235	.983	.097	.155	150–151	0	.950	.811	.044	.095
123–124	0	1.068	.815	.081	.172	162–164	0	1.255	.920	.085	.250	152–154	0	1.155	.955	.055	.145
125–126	0	.994	.765	.087	.142												
127–129	0	.961	.752	.082	.127												

TABLE 24.—*Average amount of total, inorganic, ethereal, and neutral sulphur in the urine per day.*

Subject I K.

Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gram.	*Grams.*	*Gram.*	*Gram.*	*Gram.*
1-7	0	0.926	0.730	0.073	0.123
8-14	0	.903	.705	.075	.123
Av., 14 days	....	.915	.718	.074	.123
15-21	0.3	.957	.721	.072	.164
22-28	.3	1.098	.837	.074	.187
29-35	.3	1.005	.792	.066	.147
Av., 21 days	....	1.020	.783	.071	.166
36-42	.5	1.127	.854	.086	.186
43-49	.5	1.052	.795	.080	.177
50-56	.5	1.095	.791	.115	.189
Av., 21 days	....	1.091	.813	.094	.184
57-63	.75	1.264	.929	.093	.242
64-68	.75	1.216	.866	.091	.259
Av., 12 days	....	1.244	.903	.092	.249
67-75	0	.967	.757	.080	.130
76-82	0	1.012	.779	.084	.149
Av., 14 days	....	.989	.768	.082	.139
83-84	1.0	1.229	.900	.081	.248
85-91	1.0	1.103	.785	.073	.245
92-98	1.0	1.297	.923	.093	.281
99-105	1.0	1.217	.791	.076	.350
Av., 23 days	....	1.208	.839	.081	.287

Subject II O.

Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gram.	*Grams.*	*Gram.*	*Gram.*	*Gram.*
1-7	0	1.035	0.815	0.070	0.150
8-14	0	1.038	.783	.080	.175
Av., 14 days	....	1.037	.799	.075	.163
15-21	0.3	1.163	.879	.091	.193
22-28	.3	1.133	.853	.082	.198
29-35	.3	1.128	.887	.079	.162
Av., 21 days	....	1.141	.873	.084	.184
36-44	.5	1.183	.925	.094	.164
43-49	.5	1.214	.938	.080	.196
50-56	.5	1.159	.888	.085	.186
Av., 21 days	....	1.185	.917	.086	.182
57-63	.75	1.204	.900	.088	.216
64-70	.75	1.256	.932	.088	.236
71-77	.75	1.227	.916	.089	.222
78-82	.75	1.373	.986	.096	.291
Av., 26 days	....	1.257	.929	.090	.237
83-91	1.0	1.269	.928	.085	.256
92-98	1.0	1.329	.958	.093	.278
99-105	1.0	1.389	.973	.095	.321
Av., 23 days	....	1.323	.951	.090	.282

Subject III N.

Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gram.	*Grams.*	*Grams.*	*Gram.*	*Gram.*
1-7	0	1.067	0.844	0.055	0.168
8-14	0	.938	.733	.048	.157
Av., 14 days	....	1.003	.789	.052	.162
15—21	0.3	1.035	.843	.061	.131
22-28	.3	1.137	.924	.076	.137
29-35	.3	1.134	.916	.072	.146
Av., 21 days	....	1.102	.894	.070	.138
36-42	.5	1.149	.913	.071	.165
43-49	.5	1.155	.924	.053	.178
50-56	.5	1.115	.889	.061	.165
Av., 21 days	....	1.140	.909	.062	.169
57-63	.75	1.219	.942	.065	.212
64-70	.75	1.157	.888	.061	.208
71-77	.75	1.303	1.009	.053	.241
Av., 21 days	....	1.226	.946	.060	.220
78-84	1.0	1.222	.922	.062	.238
85-91	1.0	1.165	.836	.058	.271
92-98	1.0	1.112	.780	.050	.282
Av., 21 days	....	1.166	.846	.057	.264

TABLE 24.—*Average amount of total, inorganic, ethereal, and neutral sulphur in the urine per day*—Continued.

Subject I K.						Subject II O.						Subject III N.					
Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.	Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.	Day of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Grams.	*Grams.*	*Gram.*	*Gram.*	*Gram.*		*Grams.*	*Grams.*	*Gram.*	*Gram.*	*Gram.*		*Grams.*	*Grams.*	*Gram.*	*Gram.*	*Gram.*
106–112	1.5	1.271	0.826	0.081	0.364	106–112	1.5	1.454	0.993	0.090	0.371	99–105	1.5	1.205	0.817	0.057	0.331
						113–119	1.5	1.440	.974	.094	.372	106–112	1.5	1.114	.789	.066	.259
						120–126	1.5	1.279	.872	.083	.324	113–119	1.5	1.148	.831	.065	.252
						127–133	1.5	1.385	.936	.091	.358	120–126	1.5	1.138	.768	.060	.310
						134–140	1.5	1.340	.905	.077	.358	127–133	1.5	1.313	.889	.048	.376
						141–147	1.5	1.424	.955	.096	.373	134–140	1.5	1.192	.840	.061	.291
						148–150	1.5	1.440	.907	.093	.440						
Av., 7 days	....	1.271	.826	.081	.364	Av., 45 days	....	1.391	.937	.089	.365	Av., 42 days	....	1.185	.822	.059	.303
113–122	0	1.032	.787	.095	.150	151–157	0	1.116	.878	.079	.159	141–147	0	1.020	.831	.059	.130
123–129	0	1.001	.774	.083	.144	158–164	0	1.221	.923	.095	.203	148–154	0	1.050	.878	.050	.122
Av., 17 days	....	1.019	.782	.090	.148	Av., 14 days	....	1.168	.900	.087	.181	Av., 14 days	....	1.035	.854	.054	.126

TABLE 25.—*Daily distribution of sulphur in the urine.*

[Percentages of total sulphur.]

Subject I K.

Day of experiment.	Daily dose of saccharin.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gms.	*P. ct.*	*P. ct.*	*P. ct.*
1–2	0	75.9	8.8	15.8
3–5	0	79.9	7.6	12.5
6–7	0	80.1	7.5	12.4
8–9	0	81.2	5.9	12.9
10–12	0	77.0	9.5	13.5
13–14	0	76.6	9.0	14.4
15–16	0.3	75.1	7.6	17.3
17–19	.3	76.4	7.5	16.1
20–21	.3	74.3	7.4	18.3
22–23	.3	79.3	6.3	14.4
24–26	.3	74.0	6.7	19.3
27–28	.3	76.3	7.5	16.2
29–30	.3	76.4	8.2	15.4
31–33	.3	80.9	4.8	14.3
34–35	.3	78.2	7.7	14.1
36–37	.5	77.9	6.6	15.4
38–40	.5	74.6	7.7	17.7
41–42	.5	75.3	8.5	16.2
43–44	.5	80.9	7.4	11.7
45–47	.5	73.3	6.4	20.3
48–49	.5	73.9	9.5	16.6
50–51	.5	73.2	10.4	16.4
52–54	.5	71.1	11.0	17.9
55–56	.5	73.0	9.7	17.3
57–58	.75	72.6	7.6	19.8
59–61	.75	74.2	7.5	18.3
62–63	.75	73.5	6.8	19.7
64–65	.75	73.6	7.7	18.7
66–68	.75	69.7	7.4	22.9
69–70	0	75.5	8.7	15.8
71–72	0	80.1	6.0	13.9
73–75	0	78.5	9.6	11.9
76–77	0	78.1	9.1	12.8
78–79	0	80.6	8.1	11.3
80–82	0	73.2	7.9	18.9
83–84	1.0	73.1	6.7	20.2
85–86	1.0	73.3	5.3	21.4
87–89	1.0	70.3	7.2	22.4
90–91	1.0	70.0	7.3	22.7
92–93	1.0	70.3	6.5	23.2
94–96	1.0	71.4	7.7	20.9
97–98	1.0	71.6	6.9	21.5
99–100	1.0	60.0	6.7	33.3
101–103	1.0	65.4	6.5	28.1
104–105	1.0	69.0	5.5	25.5
106–107	1.5	64.0	6.6	29.4
108–110	1.5	66.1	6.7	27.2
111–112	1.5	64.1	5.9	30.0
113–114	0	78.0	7.4	14.6
115–117	0	72.3	11.6	16.1
118–119	0	78.9	7.5	13.6
120–121	0	77.5	9.6	12.9
122	0	75.8	10.2	14.0
123–124	0	76.3	7.6	16.1
125–126	0	76.9	8.8	14.3
127–129	0	78.3	8.5	13.2

Subject II O.

Day of experiment.	Daily dose of saccharin.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gms.	*P. ct.*	*P. ct.*	*P. ct.*
1–2	0	79.2	6.7	14.1
3–5	0	77.5	6.4	16.1
6–7	0	80.0	7.5	12.5
8–9	0	76.6	7.8	15.6
10–12	0	73.7	8.8	17.5
13–14	0	76.7	6.3	17.0
15–16	0.3	76.6	7.3	16.1
17–19	.3	75.5	8.4	16.1
20–21	.3	74.4	7.5	18.1
22–23	.3	76.7	7.3	16.0
24–26	.3	74.4	6.1	19.5
27–28	.3	75.9	8.8	15.3
29–30	.3	76.7	7.6	15.7
31–33	.3	80.7	8.0	11.3
34–35	.3	77.3	5.0	17.7
36–37	.5	80.2	6.0	13.8
38–40	.5	76.5	10.3	13.2
41–42	.5	78.5	6.5	15.0
43–44	.5	76.5	6.9	16.6
45–47	.5	77.4	6.6	16.0
48–49	.5	77.8	6.2	16.0
50–51	.5	75.4	6.8	17.8
52–54	.5	76.5	7.9	15.6
55–56	.5	78.2	7.1	14.7
57–58	.75	74.9	7.3	17.8
59–61	.75	76.0	7.4	16.6
62–63	.75	72.7	7.1	20.2
64–65	.75	75.2	6.5	18.3
66–68	.75	73.3	7.2	19.5
69–70	.75	74.5	7.2	18.3
71–72	.75	75.8	5.5	18.7
73–75	.75	75.0	7.8	17.2
76–77	.75	72.7	8.5	18.8
78–79	.75	70.5	6.9	22.6
80–82	.75	72.8	7.0	20.2
83–84	1.0	74.6	3.8	21.6
85–86	1.0	73.3	6.3	20.4
87–89	1.0	72.0	8.3	19.7
90–91	1.0	73.2	7.7	19.1
92–93	1.0	69.7	7.4	23.0
94–96	1.0	72.1	7.2	20.7
97–98	1.0	74.4	6.4	19.2
99–100	1.0	66.0	7.4	26.6
101–103	1.0	73.1	7.0	19.9
104–105	1.0	69.6	6.3	24.1
106–107	1.5	70.8	6.0	23.2
108–110	1.5	67.1	6.5	26.4
111–112	1.5	67.9	5.9	26.2
113–114	1.5	70.0	6.0	24.0
115–117	1.5	65.2	7.1	27.7
118–119	1.5	68.5	6.1	25.4
120–126	1.5	68.1	6.5	25.4
127–133	1.5	67.6	6.6	25.8
134–140	1.5	67.6	5.7	26.7
141–142	1.5	75.1	7.2	27.7
143–145	1.5	68.3	6.3	25.4
146–147	1.5	67.0	6.9	26.1
148–150	1.5	63.0	6.5	30.5
151–152	0	78.7	8.2	13.1
153–154	0	81.3	6.9	11.8
155–157	0	77.1	6.5	16.4
158–159	0	75.1	9.3	15.7
160–161	0	79.6	7.9	12.5
162–164	0	73.4	6.8	19.8

Subject III N.

Day of experiment.	Daily dose of saccharin.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Gms.	*P. ct.*	*P. ct.*	*P. ct.*
1–2	0	79.2	5.9	14.9
3–4	0	79.6	4.0	16.4
5–7	0	78.5	5.9	15.6
8–9	0	79.6	5.7	14.7
10–11	0	80.4	5.1	14.5
12–14	0	76.6	4.9	18.5
15–16	0.3	80.9	4.5	14.6
17–18	.3	82.5	5.1	12.4
19–21	.3	81.0	7.5	11.5
22–23	.3	82.0	6.9	11.1
24–25	.3	79.4	4.1	16.5
26–28	.3	81.8	8.0	10.2
29–30	.3	84.3	4.5	11.2
31–32	.3	76.5	10.2	13.3
33–35	.3	81.1	4.7	14.2
36–37	.5	80.7	6.2	13.1
38–39	.5	78.5	7.8	13.7
40–42	.5	79.2	5.1	15.7
43–44	.5	78.2	4.9	16.9
45–46	.5	81.8	4.4	13.8
47–49	.5	79.6	4.7	15.7
50–51	.5	79.0	4.8	16.2
52–53	.5	79.0	4.8	16.2
54–56	.5	80.7	6.0	13.3
57–58	.75	78.0	5.7	16.3
59–60	.75	77.2	3.9	18.9
61–63	.75	76.7	5.7	17.6
64–65	.75	78.3	5.4	16.3
66–67	.75	76.0	5.7	18.3
68–70	.75	76.0	4.8	19.2
71–72	.75	75.7	4.7	19.6
73–74	.75	75.8	3.4	20.8
75–77	.75	79.5	4.1	16.4
78–79	1.0	77.4	4.8	17.8
80–81	1.0	74.6	4.8	20.6
82–84	1.0	74.8	5.5	19.7
85–86	1.0	72.3	3.8	23.9
87–88	1.0	70.6	4.8	24.6
89–91	1.0	72.3	5.8	21.9
92–93	1.0	66.9	3.7	29.4
94–95	1.0	74.4	3.9	21.7
96–98	1.0	70.3	5.3	24.5
99–100	1.5	70.0	5.1	24.9
101–102	1.5	66.7	4.7	28.6
103–105	1.5	67.1	4.5	28.4
106–107	1.5	72.1	5.3	22.6
108–109	1.5	71.2	5.6	23.2
110–112	1.5	69.4	6.7	23.9
113–114	1.5	69.1	5.8	25.1
115–116	1.5	76.6	5.6	17.8
117–119	1.5	72.2	5.5	22.3
120–121	1.5	65.8	5.7	28.5
122–123	1.5	70.0	5.1	24.9
124–126	1.5	66.6	5.2	28.2
127–133	1.5	67.7	3.7	28.6
134–135	1.5	71.0	4.6	24.4
136–137	1.5	72.4	4.9	22.7
138–140	1.5	67.7	6.1	26.2
141–142	0	83.2	5.0	11.8
143–144	0	79.5	7.2	13.3
145–147	0	81.7	5.3	13.0
148–149	0	83.4	4.9	11.7
150–151	0	85.4	4.6	10.0
152–154	0	82.6	4.8	12.6

TABLE 26.—*Average distribution of sulphur in the urine.*

[Percentages of total sulphur.]

Subject I K.					Subject II O.					Subject III N.				
Days of experiment.	Daily dose of saccharin.	Sulphur.			Days of experiment.	Daily dose of saccharin.	Sulphur.			Days of experiment.	Daily dose of saccharin.	Sulphur.		
		Inorganic.	Ethereal.	Neutral.			Inorganic.	Ethereal.	Neutral.			Inorganic.	Ethereal.	Neutral.
	Grams.	*Per cent.*	*Per cent.*	*Per cent.*		*Grams.*	*Per cent.*	*Per cent.*	*Per cent.*		*Grams.*	*Per cent.*	*Per cent.*	*Per cent.*
1-7	0	78.8	7.9	13.3	1-7	0	78.7	6.8	14.5	1-7	0	79.1	5.2	15.7
8-14	0	78.1	8.3	13.6	8-14	0	75.5	7.7	16.8	8-14	0	78.1	5.2	16.7
Av., 14 days		78.4	8.1	13.5	Av., 14 days		77.1	7.2	15.7	Av., 14 days		78.6	5.2	16.2
15-21	0.3	75.4	7.5	17.1	15-21	0.3	75.5	7.9	16.6	15-21	0.3	81.5	5.9	12.6
22-28	.3	76.2	6.7	17.1	22-28	.3	75.3	7.2	17.5	22-28	.3	81.3	6.7	12.0
29-35	.3	75.8	7.7	16.5	29-35	.3	78.6	7.0	14.4	29-35	.3	80.8	6.3	12.9
Av., 21 days		75.8	7.3	16.9	Av., 21 days		76.5	7.3	16.2	Av., 21 days		81.2	6.3	12.5
36-42	.5	75.9	7.6	16.5	36-42	.5	78.2	7.9	13.9	36-42	.5	79.5	6.2	14.3
43-49	.5	75.6	7.6	16.8	43-49	.5	77.3	6.6	16.1	43-49	.5	80.0	4.6	15.4
50-66	.5	72.3	10.5	17.2	50-56	.5	76.6	7.3	16.1	50-56	.5	79.7	5.5	14.8
Av., 21 days		74.6	8.6	16.8	Av., 21 days		77.3	7.3	15.4	Av., 21 days		79.7	5.4	14.9
57-63	.75	73.5	7.4	19.1	57-63	.75	74.8	7.3	17.9	57-63	.75	77.3	5.3	17.4
64-68	.75	71.2	7.5	21.3	64-70	.75	74.2	7.0	18.8	64-70	.75	76.7	5.3	18.0
Av., 12 days		72.4	7.4	20.2	71-77	.75	74.6	7.3	18.1	71-77	.75	77.4	4.1	18.5
69-75	0	78.3	8.3	13.4	78-82	.75	71.8	7.0	21.2					
76-82	0	77.0	8.3	14.7										
Av., 14 days		77.7	8.3	14.0	Av., 26 days		73.8	7.2	19.0	Av., 21 days		77.1	4.9	18.0
83-84	1.0	73.2	6.7	20.2	83-91	1.0	73.1	6.7	20.2	78-84	1.0	75.4	5.1	19.5
85-91	1.0	71.1	6.7	22.2	92-98	1.0	72.1	7.0	20.9	85-91	1.0	71.8	5.0	23.2
92-98	1.0	71.2	7.1	21.7	99-105	1.0	70.1	6.8	23.1	92-98	1.0	70.1	4.5	25.4
99-105	1.0	65.0	6.2	28.8										
Av., 23 days		70.1	6.7	23.2	Av., 23 days		71.8	6.8	21.4	Av., 21 days		72.4	4.9	22.7

106–112	1.5	65.0	6.4	28.6	106–112	1.5	68.3	6.2	25.5	99–105	1.5	67.8	4.7	27.5
					113–119	1.5	67.7	6.5	25.8	106–112	1.5	70.8	5.9	23.3
					120–126	1.5	68.1	6.5	25.4	113–119	1.5	72.4	5.7	21.9
					127–133	1.5	67.6	6.6	25.8	120–126	1.5	67.5	5.3	27.2
					134–140	1.5	67.6	5.7	26.7	127–133	1.5	67.7	3.7	28.6
					141–147	1.5	67.1	6.7	26.2	134–140	1.5	70.5	5.1	24.4
					148–150	1.5	63.0	6.5	30.5					
Av., 7 days	....	65.0	6.4	28.6	Av., 45 days	....	67.0	6.4	26.6	Av., 42 days	....	69.4	5.1	25.5
113–122	0	76.3	9.2	14.5	151–157	0	78.7	7.1	14.2	141–147	0	81.5	5.8	12.7
123–129	0	77.3	8.3	14.4	158–164	0	75.6	7.8	16.6	148–154	0	83.6	4.8	11.6
Av., 17 days	....	76.8	8.8	14.4	Av., 14 days	....	77.2	7.4	15.4	Av., 14 days	....	82.5	5.3	12.2

TABLE 27A.—*Daily record of total, inorganic, ethereal, and neutral sulphur, and distribution of same, in the urine, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur.*

SUBJECT I K.

Days of experiment.	Daily dose of saccharin.	Daily sulphur of saccharin in urine.	Daily total sulphur less sulphur of saccharin in urine.	Daily inorganic sulphur.	Daily ethereal sulphur.	Daily neutral sulphur less sulphur of saccharin in urine.	Percentage of total sulphur less sulphur of saccharin of the urine. Inorganic.	Ethereal.	Neutral.
	Grams.	*Gram.*	*Grams.*	*Grams.*	*Gram.*	*Gram.*	*Per cent.*	*Per cent.*	*Per cent.*
1–2	0	0	0.886	0.672	0.078	0.136	75.9	8.8	15.3
3–5	0	0	.921	.736	.070	.115	79.9	7.6	12.5
6–7	0	0	.974	.780	.073	.121	80.1	7.5	12.4
8–9	0	0	.913	.741	.054	.118	81.2	5.9	12.9
10–12	0	0	.922	.710	.088	.124	77.0	9.5	13.5
13–14	0	0	.866	.663	.078	.125	76.6	9.0	14.4
15–16	0.3	0.041	.940	.736	.075	.129	78.3	8.0	13.7
17–19	.3	.048	.887	.714	.070	.103	80.5	7.9	11.6
20–21	.3	.047	.920	.718	.072	.130	78.1	7.8	14.1
22–23	.3	.045	1.035	.856	.068	.111	82.7	6.6	10.7
24–26	.3	.051	1.049	.815	.073	.161	77.7	7.0	15.3
27–28	.3	.047	1.067	.850	.083	.134	79.6	7.8	12.6
29–30	.3	.041	.925	.738	.079	.108	79.8	8.5	11.7
31–33	.3	.051	.994	.845	.050	.099	85.0	5.0	10.0
34–35	.3	.045	.939	.768	.077	.094	81.9	8.2	9.9
36–37	.5	.075	1.060	.885	.075	.100	83.5	7.1	9.4
38–40	.5	.079	1.011	.813	.084	.114	80.4	8.3	11.3
41–42	.5	.088	1.087	.885	.100	.102	81.5	9.2	9.3
43–44	.5	.078	.954	.835	.076	.043	87.5	8.0	4.5
45–47	.5	.082	.976	.775	.068	.133	79.4	7.0	13.6
48–49	.5	.083	.980	.785	.102	.093	80.1	10.4	9.5
50–51	.5	.082	1.127	.885	.125	.117	78.5	11.1	10.4
52–54	.5	.069	1.039	.788	.122	.129	75.9	11.7	12.4
55–56	.5	.073	.890	.703	.093	.094	79.0	10.4	10.6
57–58	.75	.113	1.176	.935	.099	.142	79.5	8.4	12.1
59–61	.75	.125	1.108	.915	.093	.100	82.6	8.4	9.0
62–63	.75	.122	1.162	.944	.087	.131	81.2	7.5	11.3
64–65	.75	.116	1.094	.891	.093	.110	81.5	8.5	10.0
66–68	.75	.131	1.089	.850	.090	.149	78.0	8.3	13.7
69–70	0	.014	.860	.660	.076	.124	76.8	8.8	14.4
71–72	0	0	1.017	.815	.061	.141	80.1	6.0	13.9
73–75	0	0	.995	.782	.095	.118	78.6	9.6	11.8
76–77	0	0	.972	.759	.089	.124	78.1	9.1	12.8
78–79	0	0	1.155	.931	.094	.130	80.6	8.1	11.3
80–82	0	0	.944	.691	.075	.178	73.2	7.9	18.9
83–84	1.0	.128	1.101	.900	.081	.120	81.7	7.4	10.9
85–86	1.0	.165	1.077	.910	.066	.101	84.5	6.1	9.4
87–89	1.0	.162	.876	.730	.075	.071	83.4	8.5	8.1
90–91	1.0	.171	.889	.742	.077	.070	83.4	8.7	7.9
92–93	1.0	.175	1.095	.893	.083	.119	81.6	7.6	10.8
94–96	1.0	.173	1.231	1.003	.108	.120	81.4	8.8	9.8
97–98	1.0	.169	.996	.834	.080	.082	83.7	8.0	8.3
99–100	1.0	.172	.926	.659	.073	.194	71.1	7.9	21.0
101–103	1.0	.164	1.139	.851	.085	.203	74.7	7.5	17.8
104–105	1.0	.173	1.035	.833	.067	.135	80.5	6.5	13.0
106–107	1.5	.261	.936	.767	.079	.090	82.0	8.4	9.6
108–110	1.5	.238	1.035	.842	.085	.108	81.4	8.2	10.4
111–112	1.5	.236	1.106	.860	.079	.167	77.8	7.1	15.1
113–114	0	.011	1.220	.960	.091	.169	78.6	7.5	13.9
115–117	0	0	1.019	.737	.118	.164	72.3	11.6	16.1
118–119	0	0	1.111	.877	.083	.151	78.9	7.5	13.6
120–121	0	0	.898	.696	.086	.116	77.5	9.6	12.9
122	0	0	.785	.595	.080	.110	75.8	10.2	14.0
123–124	0	0	1.068	.815	.081	.172	76.3	7.6	16.1
125–126	0	0	.994	.765	.087	.142	76.9	8.8	14.3
127–129	0	0	.961	.752	.082	.127	78.3	8.5	13.2

TABLE 27B.—*Daily record of total, inorganic, ethereal, and neutral sulphur, and distribution of same, in the urine, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur.*

SUBJECT II O.

Days of experiment.	Daily dose of saccharin.	Daily sulphur of saccharin in urine.	Daily total sulphur less sulphur of saccharin in urine.	Daily inorganic sulphur.	Daily ethereal sulphur.	Daily neutral sulphur less sulphur of saccharin in urine.	Percentage of total sulphur less sulphur of saccharin of the urine.		
							Inorganic.	Ethereal.	Neutral.
	Grams.	*Gram.*	*Grams.*	*Grams.*	*Gram.*	*Gram.*	*Per cent.*	*Per cent.*	*Per cent.*
1–2	0	0	0.985	0.780	0.066	0.139	79.2	6.7	14.1
3–5	0	0	1 064	.825	.068	.171	77.5	6 4	16.1
6–7	0	0	1 042	.834	.078	.130	80.0	7.5	12.5
8–9	0	0	.934	.715	.073	.146	76.6	7.8	15.6
10–12	0	0	1.032	.761	.091	.180	73.7	8.8	17.5
13–14	0	0	1.152	.884	.072	.196	76.7	6.3	17.0
15–16	0.3	.041	1.169	.926	.089	.154	79.2	7.6	13.2
17–19	.3	.047	1.138	.895	.099	.144	78.6	8.7	12.7
20–21	.3	.047	1.038	.806	.082	.150	77.7	7.9	14.4
22–23	.3	.043	1.066	.851	.081	.134	79.8	7.6	12.6
24–26	.3	.052	1.086	.847	.069	.170	78.0	6.4	15.6
27–28	.3	051	1 089	.865	.101	.123	79 5	9.2	11.3
29–30	.3	049	1 079	.865	.086	.128	80.2	8.0	11.8
31–33	.3	.046	1.071	.902	.089	.080	84 2	8.3	7.5
34–35	.3	.050	1.095	.885	.057	.153	80.8	5.2	14.0
36–37	.5	.072	1,173	.998	.075	.100	85.1	6.4	8.5
38–40	.5	.085	1.028	.851	.115	.062	82.8	11.2	6.0
41–42	.5	.077	1 148	.962	.080	.106	83.8	7.0	9.2
43–44	.5	.073	1.090	.890	.080	.120	81.7	7.3	11.0
45–47	.5	067	1 196	.977	.084	.135	81.7	7.0	11.3
48–49	.5	.069	1 121	.926	.074	.121	82.6	6.6	10.8
50–51	.5	.072	1.141	.914	.083	.144	80.1	7.3	12.6
52–54	.5	.074	1.053	.862	.089	.102	81.8	8.5	9.7
55–56	.5	.080	1.072	.900	.082	.090	83.9	7.7	8.4
57–58	.75	.129	1.170	.973	.095	.102	83.2	8.1	8.7
59–61	.75	.108	1.067	.893	.087	.087	83.6	8.2	8.2
62–63	.75	.119	1.032	.837	.082	.113	81.1	8.0	10.9
64–65	.75	.129	1.071	.902	.078	.091	84.2	7.3	8.5
66–68	.75	.119	1.112	.903	.088	.121	81.2	7.9	10.9
69–70	.75	.138	1.211	1.005	.097	.109	83.0	8.0	9.0
71–72	.75	.123	1.156	.970	.070	.116	84.0	6.0	10.0
73–75	.75	.129	1.108	.928	.096	.084	83.7	8.7	7.6
76–77	.75	.101	1.058	.843	.098	.117	79.6	9.3	11.1
78–79	.75	.125	1.297	1.002	.098	.197	77.2	7.6	15.2
80–82	.75	.122	1.218	.976	.094	.148	80.2	7.7	12.1
83–84	1.0	.134	1.184	.983	.050	.151	83.0	4.2	12.8
85–86	1.0	.143	1.162	.957	.082	.123	82.3	7.1	10.6
87–89	1.0	.169	1.023	.858	.099	.066	83.8	9.7	6.5
90–91	1.0	.164	1.134	.950	.100	.084	83.8	8.8	7.4
92–93	1.0	.174	1.103	.889	-.094	.120	80.6	8.5	10.9
94–96	1.0	.155	1.159	.947	.095	.117	81.7	8.2	10.1
97–98	1 0	146	1.256	1.044	.089	.123	83.1	7.1	9.8
99–100	1.0	.166	1.133	.858	.096	.179	75.7	8.5	15.8
101–103	1 0	165	1 150	.961	.992	.097	83.6	8.0	8.4
104–105	1.0	.172	1.419	1.107	.100	.212	78.0	7.1	14.9
106–107	1 5	.220	1 070	.914	.077	.079	85.4	7.2	7.4
108–110	1.5	.221	1.309	1.028	.099	.182	78.5	7.6	13.9
111–112	1.5	.225	1.280	1.021	.089	.170	79.8	6.9	13.3
113–114	1.5	.224	1.396	1.134	.097	.165	81.3	6.9	11.8
115–117	1.5	.259	1.099	.885	.097	.117	80.5	8.8	10.7
118–119	1.5	.236	1.146	.949	.085	.112	82.8	7.4	9.8
120–126	1.5	.251	1.028	.872	.083	.073	84.8	8.1	7.1
127–133	1.5	.234	1.151	.936	.091	.124	81.3	7.9	10.8
134–140	1.5	.246	1.094	.905	.077	.112	82.8	7.0	10.2
141–142	1.5	.246	1.042	.838	.093	.111	80.4	8.9	10.7
143–145	1.5	.244	1.196	.984	.091	.121	82.3	7.6	10.1
146–147	1.5	.250	1.284	1.027	.106	.151	80.0	8.3	11.7
148–150	1.5	.245	1.195	.907	.093	.195	75.9	7.8	16.3
151–152	0	.010	1.069	.849	.089	.131	79.4	8.3	12.3
153–154	0	0	1 060	.862	.073	.125	81.3	6.9	11.8
155–157	0	0	1 178	.908	.077	.193	77.1	6.5	16.4
158–159	0	0	1.154	.866	.107	.181	75.1	9.3	15.7
160–161	0	0	1.235	.983	.097	.155	79.6	7.9	12.5
162–164	0	0	1.255	.920	.085	.250	73.4	6.8	19.8

TABLE 27C.—*Daily record of total inorganic, ethereal, and neutral sulphur, and distribution of same in the urine, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur.*

SUBJECT III N.

Days of experiment.	Daily dose of saccharin.	Daily sulphur of saccharin in urine.	Daily total sulphur less sulphur of saccharin in urine.	Daily inorganic sulphur.	Daily ethereal sulphur.	Daily neutral sulphur less sulphur of saccharin in urine.	Percentage of total sulphur less sulphur of saccharin of the urine.		
							Inorganic.	Ethereal.	Neutral.
	Gram.	*Gram.*	*Grams.*	*Grams.*	*Gram.*	*Gram.*	*Per cent.*	*Per cent.*	*Per cent.*
1–2	0	0	0.999	0.791	0.059	0.149	79.2	5.9	14.9
3–4	0	0	1.480	1.178	.059	.243	79.6	4.0	16.4
5–7	0	0	.836	.657	.049	.130	78.5	5.9	15.6
8–9	0	0	.785	.625	.045	.115	79.6	5.7	14.7
10–11	0	0	.737	.592	.038	.107	80.4	5.1	14.5
12–14	0	0	1.175	.900	.057	.218	76.6	4.9	18.5
15–16	0.3	0.033	.912	.764	.043	.105	83.8	4.7	11.5
17–18	.3	.040	1.228	1.045	.065	.118	85.1	5.3	9.6
19–21	.3	.040	.899	.760	.071	.068	84.5	7.9	7.6
22–23	.3	.046	1.262	1.073	.090	.099	85.1	7.1	7.8
24–25	.3	.039	.946	.782	.041	.123	82.7	4.3	13.0
26–28	.3	.038	1.087	.921	.090	.077	84.6	8.3	7.1
29–30	.3	.050	1.330	1.163	.062	.105	87.4	4.7	7.9
31–32	.3	.042	1.149	.911	.122	.116	79.3	10.6	10.1
33–35	.3	.036	.895	.755	.044	.096	84.4	4.9	10.7
36–37	.5	.061	1.124	.957	.074	.094	85.1	6.6	8.3
38–39	.5	.082	1.070	.905	.090	.075	84.6	8.4	7.0
40–42	.5	.074	1.050	.890	.057	.103	84.8	5.4	9.8
43–44	.5	.066	1.062	.882	.055	.125	83.0	5.2	11.8
45–46	.5	.083	1.362	1.182	.063	.117	86.8	4.6	8.6
47–49	.5	.055	.924	.779	.046	.100	84.3	5.0	10.7
50–51	.5	.072	1.207	1.010	.062	.135	83.7	5.1	11.2
52–53	.5	.073	.957	.815	.056	.086	85.2	5.8	9.0
54–56	.5	.074	.989	.858	.064	.067	86.7	6.5	6.8
57–58	.75	.138	1.405	1.204	.088	.113	85.6	6.3	8.1
59–60	.75	.086	.904	.764	.039	.101	84.5	4.3	11.2
61–63	.75	.087	1.068	.886	.066	.116	83.0	6.2	10.8
64–65	.75	.103	1.167	.995	.068	.104	85.3	5.8	8.9
66–67	.75	.107	1.203	.995	.075	.133	82.7	6.2	11.1
68–70	.75	.090	.890	.745	.047	.098	83.7	5.3	11.0
71–72	.75	.100	1.025	.852	.053	.120	83.1	5.2	11.7
73–74	.75	.109	1.249	1.029	.046	.174	82.4	3.7	13.9
75–77	.75	.121	1.263	1.100	.057	.106	87.1	4.5	8.4
78–79	1.0	.127	1.088	.940	.058	.090	86.3	5.4	8.3
80–81	1.0	.138	1.105	.927	.060	.118	83.9	5.4	10.7
82–84	1.0	.095	1.117	.906	.067	.144	81.1	6.0	12.9
85–86	1.0	.157	.977	.820	.043	.114	84.0	4.4	11.6
87–88	1.0	.109	1.158	.894	.061	.203	77.2	5.3	17.5
89–91	1.0	.111	1.009	.810	.065	.134	80.3	6.4	13.3
92–93	1.0	.161	1.069	.822	.046	.201	76.9	4.3	18.8
94–95	1.0	.137	.860	.741	.039	.080	86.2	4.5	9.3
96–98	1.0	.150	.959	.778	.059	.122	81.1	6.2	12.7
99–100	1.5	.154	1.026	.826	.060	.140	80.6	5.8	13.6
101–102	1.5	.214	1.259	.984	.069	.206	78.2	5.5	16.3
103–105	1.5	.185	.858	.700	.047	.111	81.6	5.5	12.9
106–107	1.5	.213	1.227	1.038	.076	.113	84.6	6.2	9.2
108–109	1.5	.141	.711	.607	.048	.056	85.3	6.8	7.9
110–112	1.5	.184	.888	.744	.072	.072	83.8	8.1	8.1
113–114	1.5	.242	1.217	1.008	.085	.124	82.8	7.0	10.2
115–116	1.5	.195	1.059	.960	.070	.029	90.7	6.6	2.7
117–119	1.5	.147	.722	.627	.048	.047	86.9	6.6	6.5
120–121	1.5	.233	.848	.712	.061	.075	84.0	7.2	8.8
122–123	1.5	.228	.996	.857	.062	.077	86.1	6.2	7.7
124–126	1.5	.189	.929	.745	.058	.126	80.2	6.2	13.6
127–133	1.5	....	1.101	.889	.048	.164	80.7	4.4	14.9
134–135	1.5	.248	1.185	1.017	.066	.102	85.8	5.6	8.6
136–137	1.5	.252	1.208	1.058	.071	.079	87.6	5.9	6.5
138–140	1.5	.177	.676	.577	.052	.047	85.3	7.7	7.0
141–142	0	.018	1.001	.848	.051	.102	84.7	5.1	10.2
143–144	0	0	1.009	.802	.073	.134	79.5	7.2	13.3
145–147	0	0	1.028	.840	.054	.134	81.7	5.3	13.0
148–149	0	0	.992	.827	.049	.116	83.4	4.9	11.7
150–151	0	0	.950	.811	.044	.095	85.4	4.6	10.0
152–154	0	0	1.155	.955	.055	.145	82.6	4.8	12.6

Table 28.—*Average amount of total, inorganic, ethereal, and neutral sulphur in the urine per day, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur.*

Subject I K.						Subject II O.						Subject III N.					
Days of experiment.	Daily dose of saccharin.	Sulphur.				Days of experiment.	Daily dose of saccharin.	Sulphur.				Days of experiment.	Daily dose of saccharin.	Sulphur.			
		Total.	Inorganic.	Ethereal.	Neutral.			Total.	Inorganic.	Ethereal.	Neutral.			Total.	Inorganic	Ethereal.	Neutral.
	Grams.	*Grams.*	*Gram.*	*Gram.*	*Gram.*		*Grams.*	*Grams.*	*Gram.*	*Gram.*	*Gram.*		*Grams.*	*Grams.*	*Grams.*	*Gram.*	*Gram.*
1–7	0	0.926	0.730	0.073	0.123	1–7	0	1.035	0.815	0.070	0.150	1–7	0	1.067	0.844	0.055	0.168
8–14	0	.903	.705	.075	.123	8–14	0	1.038	.783	.080	.175	8–14	0	.938	.733	.048	.157
Av., 14 days	....	.915	.718	.074	.123	Av., 14 days	....	1.037	.799	.075	.163	Av., 14 days	....	1.003	.789	.052	.162
15–21	0.3	.911	.721	.072	.118	15–21	0.3	1.117	.879	.091	.147	15–21	0.3	.997	.843	.061	.093
22–28	.3	1.050	.837	.074	.139	22–28	.3	1.084	.853	.082	.149	22–28	.3	1.097	.924	.076	.097
29–35	.3	.960	.792	.066	.102	29–35	.3	1.080	.887	.079	.114	29–35	.3	1.093	.916	.072	.105
Av., 21 days	....	.960	.783	.071	.106	Av., 21 days	....	1.094	.873	.084	.137	Av., 21 days	....	1.062	.894	.070	.098
36–42	.5	1.047	.854	.086	.106	36–42	.5	1.104	.925	.094	.085	36–42	.5	1.077	.913	.071	.093
43–49	.5	.971	.795	.080	.096	43–49	.5	1.140	.938	.080	.122	43–49	.5	1.089	.924	.053	.112
50–56	.5	1.021	.791	.115	.115	50–56	.5	1.084	.888	.085	.111	50–56	.5	1.042	.889	.061	.092
Av., 21 days	....	1.013	.813	.094	.106	Av., 21 days	....	1.109	.917	.086	.106	Av., 21 days	....	1.070	.909	.062	.099
57–63	.75	1.144	.929	.093	.122	57–63	.75	1.087	.900	.088	.099	57–63	.75	1.119	.942	.065	.112
64–68	.75	1.091	.866	.091	.134	64–70	.75	1.129	.932	.088	.109	64–70	.75	1.058	.888	.061	.109
						71–77	.75	1.108	.916	.089	.103	71–77	.75	1.192	1.009	.053	.130
Av., 12 days	....	1.021	.906	.092	.126	78–82	.75	1.250	.986	.096	.168						
69–75	0	.967	.757	.080	.130												
76–82	0	1.012	.779	.084	.149												
Av., 14 days	....	.989	.768	.082	.139	Av., 26 days	....	1.136	.929	.090	.116	Av., 21 days	....	1.123	.946	.060	.117
83–84	1.0	1.101	.900	.081	.120	83–91	1.0	1.115	.927	.085	.102	78–84	1.0	1.105	.922	.062	.121
85–91	1.0	.938	.785	.073	.080	92–98	1.0	1.171	.958	.093	.120	85–91	1.0	1.042	.836	.058	.147
92–98	1.0	1.124	.923	.093	.108	99–105	1.0	1.222	.973	.095	.154	92–98	1.0	.978	.780	.050	.148
99–105	1.0	1.048	.791	.076	.181												
Av., 23 days	....	1.043	.839	.081	.122	Av., 23 days	....	1.165	.955	.090	.123	Av., 21 days	....	1.041	.846	.057	.139

TABLE 28.—*Average amount of total, inorganic, ethereal, and neutral sulphur in the urine per day, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur*—Continued.

Subject I K.

Days of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Grams.	*Grams.*	*Gram.*	*Gram.*	*Gram.*
106–112	1.5	1.026	0.826	0.081	0.119
Av., 7 days	....	1.026	.826	.081	.119
113–122	0	1.032	.787	.095	.150
123–129	0	1.001	.774	.083	.144
Av., 17 days	....	1.019	.782	.090	.147

Subject II O.

Days of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Grams.	*Grams.*	*Gram.*	*Gram.*	*Gram.*
106–112	1.5	1.233	0.993	0.090	0.150
113–119	1.5	1.197	.974	.094	.129
120–126	1.5	1.029	.872	.083	.074
127–133	1.5	1.151	.936	.091	.124
134–140	1.5	1.094	.905	.077	.112
141–147	1.5	1.176	.955	.096	.124
148–150	1.5	1.195	.907	.093	.195
Av., 45 days	....	1.150	.937	.089	.124
151–157	0	1.116	.878	.079	.159
158–164	0	1.221	.923	.095	.203
Av., 14 days	....	1.168	.900	.087	.181

Subject III N.

Days of experiment.	Daily dose of saccharin.	Sulphur. Total.	Sulphur. Inorganic.	Sulphur. Ethereal.	Sulphur. Neutral.
	Grams.	*Grams.*	*Gram.*	*Gram.*	*Gram.*
99–105	1.5	1.020	0.817	0.057	0.146
106–112	1.5	.913	.789	.066	.079
113–119	1.5	.960	.831	.065	.064
120–126	1.5	.925	.768	.060	.097
127–133	1.5	1.102	.889	.048	.165
134–140	1.5	.974	.840	.061	.073
Av., 42 days	....	.986	.822	.059	.104
141–147	0	1.020	.831	.059	.130
148–154	0	1.050	.878	.050	.122
Av., 14 days	....	1.035	.854	.054	.126

TABLE 29.—*Average distribution of sulphur in the urine, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur.*

[Percentages of total sulphur less sulphur of saccharin.]

Subject I K.

Days of experiment.	Daily dose of saccharin.	Sulphur. Inorganic.	Sulphur. Ethereal.	Neutral sulphur, less sulphur of saccharin of the urine.
	Grams.	*Per cent.*	*Per cent.*	*Per cent.*
1–7	0	78.8	7.9	13.3
8–14	0	78.1	8.3	13.6
Av., 14 days	....	78.4	8.1	13.5

Subject II O.

Days of experiment.	Daily dose of saccharin.	Sulphur. Inorganic.	Sulphur. Ethereal.	Neutral sulphur, less sulphur of saccharin of the urine.
	Grams.	*Per cent.*	*Per cent.*	*Per cent.*
1–7	0	78.7	6.8	14.5
8–14	0	75.5	7.7	16.8
Av., 14 days	....	77.1	7.3	15.8

Subject III N.

Days of experiment.	Daily dose of saccharin.	Sulphur. Inorganic.	Sulphur. Ethereal.	Neutral sulphur, less sulphur of saccharin of the urine.
	Grams.	*Per cent.*	*Per cent.*	*Per cent.*
1–7	0	79.1	5.2	15.7
8–14	0	78.1	5.2	16.7
Av., 14 days	....	78.6	5.2	16.1

15–21	0.3	79.1	7.9	13.0
22–28	.3	82.4	7.3	10.3
29–35	.3	82.6	6.9	10.5
Av., 21 days	....	81.4	7.3	11.3
36–42	.5	81.6	8.2	10.2
43–49	.5	81.9	8.2	9.9
50–56	.5	77.4	11.3	11.3
Av., 21 days	....	80.3	9.2	10.5
57–63	.75	81.3	8.1	10.6
64–68	.75	79.4	8.3	12.3
Av., 12 days	....	80.6	8.2	11.2
69–75	0	78.6	8.3	13.1
76–82	0	77.0	8.3	14.7
Av., 14 days	....	77.7	8.3	14.0
83–84	1.0	81.7	7.4	10.9
85–91	1.0	83.7	7.8	8.5
92–98	1.0	82.1	8.3	9.6
99–105	1.0	75.4	7.3	17.3
Av., 23 days	....	80.3	7.8	11.9
106–112	1.5	80.5	7.9	11.6
Av., 7 days	....	80.5	7.9	11.6
113–122	0	76.5	9.2	14.3
123–129	0	77.3	8.3	14.4
Av., 17 days	....	76.7	8.8	14.5

15–21	0.3	78.6	8.1	13.3
22–28	.3	82.4	7.9	9.7
29–35	.3	81.9	7.3	10.8
Av., 14 days	....	81.0	7.7	11.3
36–42	.5	83.8	8.5	7.7
43–49	.5	82.3	7.0	10.7
50–56	.5	81.9	7.9	10.2
Av., 21 days	....	82.7	7.7	9.6
57–63	.75	82.8	8.1	9.1
64–70	.75	82.5	7.8	9.7
71–77	.75	82.7	8.0	9.3
78–82	.75	78.9	7.7	13.4
Av., 26 days	....	81.5	7.9	10.6
83–91	1.0	83.2	7.6	9.2
92–98	1.0	81.8	7.9	10.3
99–105	1.0	79.6	7.8	12.6
Av., 23 days	....	81.7	7.7	10.6
106–112	1.5	80.6	7.3	12.1
113–119	1.5	81.4	7.8	10.8
120–126	1.5	84.8	8.1	7.1
127–133	1.5	81.3	7.9	10.8
134–140	1.5	82.8	7.0	10.2
141–147	1.5	81.2	8.2	10.6
148–150	1.5	75.8	7.8	16.4
Av., 45 days	....	81.6	7.7	10.7
151–157	0	78.8	7.1	14.1
158–164	0	75.6	7.8	16.6
Av., 14 days	....	77.1	7.4	15.5

15–21	0.3	84.6	6.1	9.3
22–28	.3	84.2	6.9	8.9
29–35	.3	83.9	6.6	9.5
Av., 14 days	....	84.2	6.5	9.3
36–42	.5	84.8	6.6	8.6
43–49	.5	84.8	4.9	10.3
50–56	.5	85.3	5.9	8.8
Av., 21 days	....	85.0	5.8	9.2
57–63	.75	84.2	5.8	10.0
64–70	.75	83.9	5.8	10.3
71–77	.75	84.6	4.4	10.9
Av., 21 days	....	84.3	5.2	10.5
78–84	1.0	83.5	5.6	10.9
85–91	1.0	80.3	5.6	14.1
92–98	1.0	79.9	5.1	15.0
Av., 21 days	....	81.3	5.4	13.3
99–105	1.5	80.9	5.6	13.5
106–112	1.5	84.2	7.1	8.7
113–119	1.5	86.5	6.8	6.7
120–126	1.5	83.0	6.5	10.5
127–133	1.5	80.7	4.4	14.9
134–140	1.5	86.2	6.3	7.5
Av., 42 days	....	83.4	6.1	10.5
141–147	0	81.9	5.8	12.3
148–154	0	83.6	4.8	11.6
Av., 14 days	....	82.6	5.2	12.2

RELATION OF SULPHUR TO NITROGEN.

Since changes in nitrogen or sulphur metabolism due to saccharin would be indicated by changes in the ratio of nitrogen to sulphur in the urine, such ratios have been calculated and tabulated, and are reported in Table 30. The table embodies weekly averages and averages for the various saccharin periods as well as averages for the fore and after periods of the following values: 100 × total sulphur ÷ nitrogen; 100 × inorganic sulphur ÷ nitrogen; 100 × ethereal sulphur ÷ nitrogen; and 100 × neutral sulphur ÷ nitrogen. In the calculation of these ratios the sulphur calculated from the saccharin found in the urine was deducted from the estimated total sulphur and the neutral sulphur, and the nitrogen of the urinary saccharin was deducted from the total nitrogen of the urine.

Taking the grand average ratios for the various periods as offering a fair means of comparison, the ratios of 100 total sulphur to nitrogen for subject I K are seen to be 7.34, 7.02, 7.18, 7.53, 7.62, 7.34, 7.31, 7.24; for subject II O, 7.54, 7.05, 6.95, 7.02, 6.94, 6.87, 7.47; for subject III N the ratios are 7.18, 7.12, 7.01, 7.06, 7.10, 6.91, 7.37. These variations are so slight and show such an absence of trend as the dosage of saccharin increases that the ratios can not be said to be influenced by the saccharin taken. An inspection of the other ratios given in the table leads to the same conclusion. It seems most probable, therefore, that the saccharin taken by the subjects had no disturbing influence on the relative excretion of the nitrogen and sulphur.

TABLE 30.—*Relation of sulphur to nitrogen in urine, average ratios, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur.*

SUBJECT I K.

Days of experiment.	Daily dose of saccharin.	Daily nitrogen of saccharin in urine.	Daily total nitrogen less nitrogen of saccharin in urine.	Relation to nitrogen, based on total nitrogen less nitrogen of saccharin in urine.			
				Total sulphur less sulphur of saccharin in urine.	Sulphur.		Neutral sulphur less sulphur of saccharin in urine.
					Inorganic.	Ethereal.	
	Gram.	*Gram.*	*Grams.*	*100 T. S.: N.*	*100 I. S.: N.*	*100 E. S.: N.*	*100 N. S.: N.*
1–7	0	0	12.41	7.46	5.88	0.59	0.99
8–14	0	0	12.52	7.21	5.63	.60	.98
Av., 14 days			12.46	7.34	5.76	.59	.99
15–21	0.3	0.02	12.88	7.08	5.60	56.	.92
22–28	.3	.02	15.06	6.97	5.55	.49	.93
29–35	.3	.02	13.67	7.01	5.80	.48	.73
Av., 21 days		.02	13.87	7.02	5.65	.51	.86
36–42	.5	.04	14.63	7.16	5.84	.59	.73
43–49	.5	.04	13.90	6.98	5.72	.57	.69
50–56	.5	.03	13.79	9.42	5.74	.84	.84
Av., 21 days		.04	14.10	7.18	5.77	.66	.75
57–63	.75	.05	15.10	7.58	6.16	.62	.80
64–68	.75	.05	14.59	7.48	5.94	.62	.92
Av., 12 days		.05	14.89	7.53	6.06	.62	.85

TABLE 30.—*Relation of sulphur to nitrogen in urine, average ratios, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur*—Continued.

Days of experiment.	Daily dose of saccharin.	Daily nitrogen of saccharin in urine.	Daily total nitrogen less nitrogen of saccharin in urine.	Relation to nitrogen, based on total nitrogen less nitrogen of saccharin in urine.			
				Total sulphur less sulphur of saccharin in urine.	Sulphur.		Neutral sulphur less sulphur of saccharin in urine.
					Inorganic.	Ethereal.	
	Grams.	*Gram.*	*Grams.*	*100 T. S.:N.*	*100 I. S.:N.*	*100 E. S.:N.*	*100 N. S.:N.*
69–75	0	0	12.17	7.92	6.23	0.66	1.03
76–82	0	0	13.85	7.31	5.62	.61	1.08
Av., 14 days	....	....	13.01	7.62	5.92	.64	1.06
83–84	1.0	.06	15.69	7.02	5.74	.52	.76
85–91	1.0	.07	13.33	7.04	5.89	.55	.60
92–98	1.0	.07	15.71	7.16	5.88	.59	.69
99–105	1.0	.07	13.16	7.96	6.01	.58	1.37
Av., 23 days	....	.07	14.21	7.34	5.90	.57	.87
106–112	1.5	.11	14.06	7.31	5.88	.58	.85
Av., 7 days	....	.11	14.06	7.31	5.88	.58	.85
113–122	0	0	14.42	7.13	5.45	.66	1.02
123–129	0	0	13.55	7.39	5.72	.61	1.06
Av., 17 days	....	....	14.07	7.24	5.56	.64	1.04
SUBJECT II O.							
1–7	0	0	13.87	7.46	5.88	0.50	1.08
8–14	0	0	13.62	7.62	5.75	.59	1.28
Av., 14 days	....	....	13.74	7.54	5.82	.55	1.18
15–21	0.3	0.02	15.80	7.07	5.55	.58	.94
22–28	.3	.02	15.14	7.18	5.63	.54	1.01
29–35	.3	.02	15.73	6.89	5.64	.50	.75
Av., 21 days	....	.02	15.56	7.05	5.61	.54	.90
36–42	.5	.03	16.06	6.90	5.78	.59	.53
43–49	.5	.03	16.46	6.92	5.70	.48	.74
50–56	.5	.03	15.42	7.02	5.75	.55	.72
Av., 21 days	....	.03	15.96	6.95	5.74	.54	.67
57–63	.75	.05	15.75	6.89	5.70	.56	.63
64–70	.75	.05	15.79	7.15	5.90	.56	.69
71–77	.75	.05	15.91	6.96	5.75	.56	.65
78–82	.75	.05	17.74	7.15	5.65	.54	.96
Av., 26 days	....	.05	16.19	7.02	5.74	.56	.73
83–91	1.0	.07	16.18	6.89	5.73	.52	.63
92–98	1.0	.07	17.22	6.80	5.56	.54	.70
99–105	1.0	.07	16.99	7.20	5.73	.56	.91
Av., 23 days	....	.07	16.78	6.94	5.67	.54	.73
106–112	1.5	.10	18.30	6.74	5.43	.49	.82
113–119	1.5	.11	17.74	6.74	5.48	.53	.73
120–126	1.5	.11	15.47	6.65	5.64	.54	.47
127–133	1.5	.10	16.17	7.12	5.79	.56	.77
134–140	1.5	.11	15.75	6.95	5.75	.49	.71
141–147	1.5	.11	16.90	6.96	5.67	.57	.74
148–150	1.5	.11	16.71	7.16	5.43	.56	1.15
Av., 45 days	....	.11	16.72	6.87	5.60	.53	.74
151–157	0	0	14.93	7.46	5.88	.53	1.05
158–164	0	0	16.31	7.48	5.66	.58	1.24
Av., 14 days	....	....	15.62	7.47	5.77	.56	1.15

TABLE 30.—*Relation of sulphur to nitrogen in urine, average ratios, after deducting the sulphur of the saccharin of the urine from the total and the neutral sulphur*—Continued.

SUBJECT III N.

Days of experiment.	Daily dose of saccharin.	Daily nitrogen of saccharin in urine.	Daily total nitrogen less nitrogen of saccharin in urine.	Relation to nitrogen, based on total nitrogen less nitrogen of saccharin in urine.			
				Total sulphur less sulphur of saccharin in urine.	Sulphur.		Neutral sulphur less sulphur of saccharin in urine.
					Inorganic.	Ethereal.	
	Grams.	*Gram.*	*Grams.*	*100 T. S.: N.*	*100 I. S.: N.*	*100 E. S.: N.*	*100 N. S.: N.*
1-7	0	0	14.18	7.22	5.96	0.39	0.87
8-14	0	0	12.51	7.13	5.86	.38	.89
Av., 14 days			13.34	7.18	5.91	.39	.88
15-21	0.3	0.02	14.29	6.98	5.90	.43	.65
22-28	.3	.02	15.70	6.98	5.88	.48	.62
29-35	.3	.02	14.77	7.40	6.21	.49	.70
Av., 21 days		.02	14.92	7.12	6.00	.47	.66
36-42	.5	.03	15.00	7.17	6.08	.47	.62
43-49	.5	.03	15.89	6.85	5.82	.33	.70
50-56	.5	.03	14.86	7.01	5.98	.41	.62
Av., 21 days		.03	15.25	7.01	5.96	.40	.65
57-63	.75	.04	16.02	6.99	5.88	.41	.70
64-70	.75	.04	15.32	6.91	5.80	.40	.71
71-77	.75	.05	16.38	7.28	6.16	.32	.80
Av., 21 days		.04	15.91	7.06	5.95	.38	.74
78-84	1.0	.05	16.15	6.84	5.70	.39	.75
85-91	1.0	.05	14.42	7.21	5.79	.40	1.02
92-98	1.0	.06	13.43	7.26	5.80	.37	1.09
Av., 21 days		.05	14.67	7.10	5.76	.39	.95
99-105	1.5	.08	14.28	7.08	5.72	.40	.96
106-112	1.5	.08	13.73	6.81	5.74	.48	.59
113-119	1.5	.08	14.55	6.60	5.71	.45	.44
120-126	1.5	.09	13.20	7.01	5.82	.45	.74
127-133	1.5	.09	14.89	7.39	5.97	.32	1.10
134-140	1.5	.10	14.82	6.57	5.67	.41	.49
Av., 42 days		.09	14.24	6.91	5.77	.42	.72
141-147	0	0	13.85	7.33	6.00	.43	.90
148-154	0	0	14.17	7.40	6.19	.35	.86
Av., 14 days			14.01	7.37	6.10	.39	.88

CHLORINE AS SODIUM CHLORIDE.

The average daily excretion of sodium chloride in the urine varies but slightly and within normal limits throughout the experiment. (cf. Tables 76 and 31.) The average daily excretion of sodium chloride during the fore period in the case of each subject is less than during any saccharin period. (Table 31.) The amount slightly increases during the first two saccharin periods, when 0.3 and 0.5 grams were given daily. Then the amount gradually decreases, but does not at any time fall as low as during the fore period, and in the cases of subjects I K and II O it is less in the after period than in the preceding period of highest saccharin dosage. In the case of subject

III N the amount excreted during the period of the highest saccharin dosage is nearly as low as in the fore period, and it rises slightly again in the after period.

Since the sodium chloride in the urine varies with that taken in the food, the only significance in these fluctuations is in their correspondence to a slight increase of appetite during the periods when saccharin was given. (cf. Table 77.)

TABLE 31.—*Average amount of chlorine as NaCl per day.*

Subject I K.		
Days of experiment.	Daily dose of saccharin.	Chlorine as NaCl.
	Grams.	*Grams.*
1–7	0	11.24
8–14	0	7.79
Av., 14 days	....	9.52
15–21	0.3	9.40
22–28	.3	13.3
29–35	.3	9.23
Av., 21 days	....	10.64
36–42	.5	11.3
43–49	.5	11.2
50–56	.5	15.2
Av., 21 days	....	12.6
57–63	.75	13.7
64–68	.75	10.8
Av., 12 days	....	12.5
69–75	0	13.4
76–82	0	9.9
Av., 14 days	....	11.6
83–84	1.0	14.0
85–91	1.0	9.3
92–98	1.0	11.6
99–105	1.0	10.0
Av., 23 days	....	10.6
106–112	1.5	11.9
Av., 7 days	....	11.9
113–122	0	11.8
123–129	0	11.7
Av., 17 days	....	11.8

Subject II O.		
Days of experiment.	Daily dose of saccharin.	Chlorine as NaCl.
	Grams.	*Grams.*
1–7	0	12.2
8–14	0	16.4
Av., 14 days	....	14.3
15–21	0.3	16.0
22–28	.3	17.8
29–35	.3	17.0
Av., 21 days	....	16.9
36–42	.5	18.1
43–49	.5	19.9
50–56	.5	17.2
Av., 21 days	....	18.4
57–63	.75	15.7
64–70	.75	19.4
71–77	.75	19.6
78–82	.75	15.2
Av., 26 days	....	17.6
83–91	1.0	16.1
92–98	1.0	17.1
99–105	1.0	14.9
Av., 23 days	....	16.0
106–112	1.5	16.5
113–119	1.5	16.1
120–126	1.5	14.0
127–133	1.5	15.6
134–140	1.5	17.3
141–147	1.5	16.7
148–150	1.5	15.6
Av., 45 days	....	16.0
151–157	0	13.0
158–164	0	15.6
Av., 14 days	....	14.3

Subject III N.		
Days of experiment.	Daily dose of saccharin.	Chlorine as NaCl.
	Grams.	*Grams.*
1–7	0	11.2
8–14	0	13.0
Av., 14 days	....	12.1
15–21	0.3	15.7
22–28	.3	18.2
29–35	.3	14.1
Av., 21 days	....	16.0
36–42	.5	14.2
43–49	.5	15.8
50–56	.5	16.6
Av., 21 days	....	15.5
57–63	.75	15.1
64–70	.75	13.6
71–77	.75	15.8
Av., 21 days	....	14.8
78–84	1.0	15.9
85–91	1.0	15.2
92–98	1.0	14.8
Av., 21 days	....	15.3
99–105	1.5	16.3
106–112	1.5	12.4
113–119	1.5	13.1
120–126	1.5	12.0
127–133	1.5	10.0
134–140	1.5	11.9
Av., 42 days	....	12.6
141–147	0	13.5
148–154	0	13.2
Av., 14 days	....	13.4

TOTAL ACIDITY AS OXALIC ACID.

The variations in the total acidity of the urine are given in the daily records and in the accompanying table of averages of total acidity (Table 32). The average acidity for the different periods in

the case of each subject varies within narrow limits. It is at all times within a normal range. The fluctuations bear no relation to the dosage of saccharin and appear to be uninfluenced by it.

TABLE 32.—*Average total acidity per day in terms of oxalic acid.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Acidity in terms of oxalic acid.	Days of experiment.	Daily dose of saccharin.	Acidity in terms of oxalic acid.	Days of experiment.	Daily dose of saccharin.	Acidity in terms of oxalic acid.
	Grams.	*Grams.*		*Grams.*	*Grams.*		*Grams.*	*Grams.*
1–7	0	1.71	1–7	0	1.88	1–7	0	1.65
8–14	0	1.77	8–14	0	1.82	8–14	0	1.55
Av., 14 days	....	1.74	Av., 14 days	....	1.85	Av., 14 days	....	1.60
15–21	0.3	1.62	15–21	0.3	2.05	15–21	0.3	1.86
22–28	.3	1.83	22–28	.3	1.84	22–28	.3	1.64
29–35	.3	1.93	29–35	.3	1.91	29–35	.3	1.81
Av., 21 days	....	1.79	Av., 21 days	....	1.93	Av., 21 days	....	1.77
36–42	.5	1.89	36–42	.5	1.91	36–42	.5	1.65
43–49	.5	1.67	43–49	.5	1.81	43–49	.5	2.05
50–56	.5	1.94	50–56	.5	1.80	50–56	.5	1.68
Av., 21 days	....	1.83	Av., 21 days	....	1.84	Av., 21 days	....	1.79
57–63	.75	1.97	57–63	.75	1.83	57–63	.75	1.82
64–68	.75	2.11	64–70	.75	2.02	64–70	.75	1.79
			71–77	.75	1.94	71–77	.75	1.73
Av., 12 days	....	2.03	78–82	.75	2.20			
69–75	0	1.28						
76–82	0	1.85						
Av., 14 days	....	1.56	Av., 26 days	....	1.98	Av., 21 days	....	1.78
83–84	1.0	1.80	83–91	1.0	2.05	78–84	1.0	1.55
85–91	1.0	1.83	92–98	1.0	2.16	85–91	1.0	1.50
92–98	1.0	1.96	99–105	1.0	2.12	92–98	1.0	1.30
99–105	1.0	1.34						
Av., 23 days	....	1.72	Av., 23 days	....	2.10	Av., 21 days	....	1.45
106–112	1.5	1.98	106–112	1.5	2.09	99–105	1.5	1.48
			113–119	1.5	2.13	106–112	1.5	1.08
			120–126	1.5	1.68	113–119	1.5	1.47
			127–133	1.5	1.69	120–126	1.5	1.76
			134–140	1.5	1.62	127–133	1.5	1.60
			141–147	1.5	2.23	134–140	1.5	1.65
			148–150	1.5	2.14			
Av., 7 days	....	1.98	Av., 45 days	....	1.92	Av., 42 days	....	1.51
113–122	0	1.54	151–157	0	2.26	141–147	0	1.64
123–129	0	1.56	158–164	0	2.29	148–154	0	1.86
Av., 17 days	....	1.55	Av., 14 days	....	2.28	Av., 14 days	....	1.75

SEDIMENTS.

A microscopical examination was made of the centrifugalized sediments from all the specimens of urine. The amounts and character of the sediments were fairly uniform throughout the periods of the experiment, varying somewhat with the subject under observation.

A few epithelial cells from the bladder were almost constantly found. These were in no specimen in excess of a normal amount.

No casts of any variety were at any time found. A few calcium oxalate crystals were regularly found in the case of each subject. These were no more frequently present during the saccharin periods than during the weeks when no saccharin was taken.

In the case of subject I K there was a frequent separation of urates throughout the time that he was under observation. This precipitation of urates was coincident with a greater concentration of the urine than occurred in the other subjects, as shown by a smaller volume and a higher specific gravity. It was not due to a greater amount of uric acid excreted than in the case of the other subjects. The more frequent precipitation of urates in the later than in the first two periods of subject I K was probably due to the colder weather of the winter months causing a separation of the precipitate, as the actual amounts of uric acid excreted were only slightly increased in the later periods. (Table 20.)

A few solitary leucocytes were occasionally found in the sediments. These were somewhat more frequent in the periods of higher dosage of saccharin and in the after period. This may indicate that saccharin in the dosage of a gram to a gram and a half in a day is slightly irritating to the urinary passages.

FECES.

WEIGHT OF MOIST FECES.

The weight of the fresh feces was recorded daily and can be noted in the table of daily records (Table 76). As these weights vary widely from day to day, the influence of saccharin on the amount of the feces can be studied better from the averages for the periods as shown in Table 33. In the case of subject I K the average amount of fresh feces became definitely less during the first saccharin period. Then it increased during the second and third saccharin periods and became markedly less during the last two saccharin periods. It was the least of all in the after period. In the case of subject II O the average weight of fresh feces was nearly the same in the fore period, the after period, and the first saccharin period. It was less in the other saccharin periods. In the case of subject III N the weight of fresh feces was greatest in the first two saccharin periods. It was least in the fore period and in the third saccharin period and became greater in the last two saccharin periods and in the after period. From these results it is evident that the administration of saccharin in the dosage used had no specific influence on the weight of the moist feces.

TABLE 33.—*Average weight of moist feces per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Moist feces.	Days of experiment.	Daily dose of saccharin.	Moist feces.	Days of experiment.	Daily dose of saccharin.	Moist feces.
	Grams.	*Grams.*		*Grams.*	*Grams.*		*Grams.*	*Grams.*
1-7	0	129.7	1-7	0	164.3	1-7	0	164.1
8-14	0	83.4	8-14	0	166.9	8-14	0	180.7
Av., 14 days		106.6	Av., 14 days		165.6	Av., 14 days		172.4
15-21	0.3	83.6	15-21	0.3	175.0	15-21	0.3	200.3
22-28	.3	91.3	22-28	.3	135.5	22-28	.3	180.0
29-35	.3	63.8	29-35	.3	188.3	29-35	.3	183.1
Av., 21 days		79.6	Av., 21 days		166.3	Av., 21 days		187.8
36-42	.5	126.0	36-42	.5	147.3	36-42	.5	221.0
43-49	.5	98.4	43-49	.5	124.6	43-49	.5	182.9
50-56	.5	126.6	50-56	.5	140.3	50-56	.5	151.3
Av., 21 days		117.0	Av., 21 days		137.4	Av., 21 days		185.1
57-63	.75	134.7	57-63	.75	138.0	57-63	.75	163.4
64-68	.75	122.1	64-70	.75	161.2	64-70	.75	192.8
			71-77	.75	122.2	71-77	.75	160.4
Av., 12 days		129.5	78-82	.75	184.2			
69-75	0	87.5						
76-82	0	85.9						
Av., 14 days		86.7	Av., 26 days		148.9	Av., 21 days		172.2
83-84	1.0	92.0	83-91	1.0	156.1	78-84	1.0	230.1
85-91	1.0	81.0	92-98	1.0	145.8	85-91	1.0	170.3
92-98	1.0	117.5	99-105	1.0	128.9	92-98	1.0	131.8
99-105	1.0	75.8						
Av., 23 days		91.5	Av., 23 days		144.7	Av., 21 days		177.4
106-112	1.5	80.7	106-112	1.5	121.4	99-105	1.5	205.7
			113-119	1.5	127.7	106-112	1.5	167.4
			120-126	1.5	147.9	113-119	1.5	154.1
			127-133	1.5	139.1	120-126	1.5	179.7
			134-140	1.5	131.5	127-133	1.5	144.7
			141-147	1.5	144.0	134-140	1.5	226.6
			148-150	1.5	162.0			
Av., 7 days		80.7	Av., 45 days		137.0	Av., 42 days		179.7
113-122	0	86.1	151-157	0	157.0	141-147	0	182.0
123-129	0	69.3	158-164	0	170.2	148-154	0	173.7
Av., 17 days		79.2	Av., 14 days		163.6	Av., 14 days		177.8

REACTION, COLOR, AND CONSISTENCE

Observations of the reaction, color, and consistence of the feces given in the table of daily records (Table 76) are brought together in the two tables which follow (Tables 34 and 35). The first table records the daily observations, and these observations are brought together in the second table in the form of averages for the various periods.

TABLE 34.—*Record of observations of reaction, color, and consistence of the feces.*

Subject I K.

Day of experiment.	Daily dose of saccharin.	Reaction. Alkaline.	Reaction. Neutral.	Reaction. Acid.	Color. Light brown.	Color. Brown.	Color. Dark brown.	Color. Charcoal.	Consistence. Hard.	Consistence. Well formed.	Consistence. Little formed.	Consistence. Not formed.
	Gm.											
1	0	+					+			+		
2	0	+					+		+			
3	0	+				+				+		
4	0	+					+				+	
5	0	+					+		+			
6	0	+					+			+		
7	0	+					+		+			
8	0	+						+				+
9	0	+						+	+			
10	0											
11	0	+					+		+			
12	0	+				+			+			
13	0	+				+			+			
14	0	+				+					+	
15	0.3	+					+		+			
16	.3	+						+			+	
17	.3	+					+		+			
18	.3											
19	.3	+				+			+			
20	.3	+				+			+			
21	.3	+				+			+			
22	.3	+					+		+			
23	.3	+					+		+			
24	.3	+					+			+		
25	.3	+				+				+		
26	.3	+				+			+			
27	.3											
28	.3	+				+			+			
29	.3	+					+			+		
30	.3	+						+	+			
31	.3	+						+	+			
32	.3											
33	.3	+					+		+			

Subject II O.

Day of experiment.	Daily dose of saccharin.	Reaction. Alkaline.	Reaction. Neutral.	Reaction. Acid.	Color. Light brown.	Color. Brown.	Color. Dark brown.	Color. Charcoal.	Consistence. Hard.	Consistence. Well formed.	Consistence. Little formed.	Consistence. Not formed.
	Gm.											
1	0	+				+					+	
2	0	+			+						+	
3	0	+			+							+
4	0			+		+					+	
5	0			+		+						+
6	0		+			+					+	
7	0	+				+				+		
8	0			+				+				+
9	0	+				+				+		
10	0			+		+				+		
11	0	+				+				+		
12	0	+			+					+		
13	0	+			+					+		
14	0	+					+			+		
15	0.3	+						+			+	
16	.3			+		+					+	
17	.3			+	+							+
18	.3											
19	.3	+				+					+	
20	.3	+				+				+		
21	.3			+		+					+	
22	.3			+	+							+
23	.3	+				+				+		
24	.3											
25	.3	+					+		+			
26	.3	+					+		+			
27	.3	+				+			+			
28	.3	+				+				+		
29	.3	+					+		+			
30	.3	+						+			+	
31	.3			+		+					+	
32	.3											
33	.3	+					+		+			

Subject III N.

Day of experiment.	Daily dose of saccharin.	Reaction. Alkaline.	Reaction. Neutral.	Reaction. Acid.	Color. Light brown.	Color. Brown.	Color. Dark brown.	Color. Charcoal.	Consistence. Hard.	Consistence. Well formed.	Consistence. Little formed.	Consistence. Not formed.
	Gm.											
1	0	+				+			+			
2	0	+				+					+	
3	0			+		+						+
4	0	+				+					+	
5	0	+				+						+
6	0			+	+							+
7	0		+			+					+	
8	0	+						+				+
9	0	+						+			+	
10	0	+			+						+	
11	0	+			+						+	
12	0	+			+						+	
13	0	+			+							+
14	0	+				+					+	
15	0.3		+					+				+
16	.3	+				+				+		
17	.3	+				+					+	
18	.3		+		+						+	
19	.3			+	+						+	
20	.3			+	+							+
21	.3			+		+					+	
22	.3	+						+		+		
23	.3	+				+				+		
24	.3	+				+				+		
25	.3	+				+				+		
26	.3	+			+					+		
27	.3	+				+				+		
28	.3	+				+				+		
29	.3	+						+		+		
30	.3	+					+				+	
31	.3	+				+				+		
32	.3	+				+					+	
33	.3	+			+						+	

TABLE 34.—*Record of observations of reaction, color, and consistence of the feces*—Continued.

Subject I K.

Day of experiment.	Daily dose of saccharin.	Reaction.			Color.				Consistence.			
		Alkaline.	Neutral.	Acid.	Light brown.	Brown.	Dark brown.	Charcoal.	Hard.	Well formed.	Little formed.	Not formed.
	Gms.											
34	.3	+	...	...	...	+	...	...	+	...	...	...
35	.3	+	...	...	+	...	...	...	+	...	...	...
36	.5	+	...	...	...	+	...	...	+	...	...	...
37	.5	+	...	...	...	...	...	+	...	+	...	...
38	.5	+	...	...	...	...	...	+	+	...	...	...
39	.5	...	...	...	...	...	...	...	...	...	...	...
40	.5	+	...	...	...	...	+	...	+	...	...	...
41	.5	+	...	...	...	+	...	...	...	+	...	...
42	.5	+	...	...	...	+	...	...	+	...	...	...
43	.5	+	...	...	...	+	...	...	+	...	...	...
44	.5	+	...	...	...	...	+	...	+	...	...	...
45	.5	+	...	...	...	...	+	...	...	+	...	...
46	.5	...	...	...	...	...	...	...	...	...	...	...
47	.5	+	...	...	...	...	+	...	+	...	...	...
48	.5	+	...	...	+	...	...	...	...	+	...	...
49	.5	+	...	...	...	...	+	...	+	...	...	...
50	.5	+	...	...	...	+	...	...	+	...	...	...
51	.5	+	...	...	...	...	...	+	+	...	...	...
52	.5	+	...	...	...	...	+	...	+	...	...	...
53	.5	+	...	...	...	...	+	...	+	...	...	...
54	.5	+	...	...	...	...	+	...	+	...	...	...
55	.5	+	...	...	...	...	+	...	+	...	...	...
56	.5	+	...	...	...	...	+	...	+	...	...	...
57	.75	+	...	...	...	...	...	+	+	...	...	...
58	.75	+	...	...	...	...	...	+	+	...	...	...
59	.75	+	...	...	...	+	...	...	...	+	...	...
60	.75	...	...	...	...	...	...	...	...	...	...	...
61	.75	+	...	...	...	...	+	...	+	...	...	...
62	.75	+	...	...	...	...	+	...	+	...	...	...
63	.75	...	...	+	+	...	...	...	...	...	+	...
64	.75	...	...	+	...	+	...	...	...	...	+	...
65	.75	...	...	+	...	+	...	...	...	+	...	...

Subject II O.

Day of experiment.	Daily dose of saccharin.	Reaction.			Color.				Consistence.			
		Alkaline.	Neutral.	Acid.	Light brown.	Brown.	Dark brown.	Charcoal.	Hard.	Well formed.	Little formed.	Not formed.
	Gms.											
34	.3	+	...	...	...	+	...	...	...	+	...	...
35	.3	...	...	+	...	+	...	...	...	...	...	+
36	.5	...	...	+	...	...	...	+	...	...	+	...
37	.5	+	...	...	...	...	...	+	...	...	+	...
38	.5	+	...	...	...	...	+	...	+	...	...	...
39	.5	...	...	...	...	...	...	...	...	...	...	...
40	.5	+	...	...	...	...	+	...	+	...	...	...
41	.5	+	...	...	...	+	...	...	...	+	...	...
42	.5	+	...	...	...	+	...	...	...	...	+	...
43	.5	+	...	...	...	+	...	...	...	...	+	...
44	.5	+	...	...	...	+	...	...	...	...	+	...
45	.5	...	...	...	...	...	...	...	...	...	...	...
46	.5	+	...	...	...	...	...	+	...	+	...	...
47	.5	+	...	...	...	...	+	...	+	...	...	...
48	.5	...	...	...	...	...	...	...	...	...	...	...
49	.5	+	...	...	...	+	...	...	...	+	...	...
50	.5	+	...	...	...	+	...	...	+	...	...	...
51	.5	+	...	...	...	...	...	+	+	...	...	...
52	.5	+	...	...	...	+	...	...	...	+	...	...
53	.5	...	...	+	+	...	...	...	...	...	...	+
54	.5	...	...	...	...	...	...	...	...	...	...	...
55	.5	+	...	...	...	+	...	...	+	...	...	...
56	.5	+	...	...	...	...	+	...	+	...	...	...
57	.75	+	...	...	...	...	...	+	...	+	...	...
58	.75	+	...	...	...	+	...	...	...	+	...	...
59	.75	+	...	...	...	...	+	...	+	...	...	...
60	.75	...	...	...	...	...	...	...	...	...	...	...
61	.75	+	...	...	...	...	+	...	+	...	...	...
62	.75	...	...	+	...	+	...	...	...	...	+	...
63	.75	+	...	...	...	+	...	...	...	+	...	...
64	.75	...	...	+	...	+	...	...	...	...	+	...
65	.75	...	...	+	...	+	...	...	...	...	+	...

Subject III N.

Day of experiment.	Daily dose of saccharin.	Reaction.			Color.				Consistence.			
		Alkaline.	Neutral.	Acid.	Light brown.	Brown.	Dark brown.	Charcoal.	Hard.	Well formed.	Little formed.	Not formed.
	Gms.											
34	.3	+	...	...	...	+	...	...	...	+	...	...
35	.3	+	...	...	...	+	...	...	...	+	...	...
36	.5	+	...	...	...	...	...	+	...	+	...	...
37	.5	+	...	...	...	...	...	+	...	+	...	...
38	.5	+	...	...	...	+	...	...	...	+	...	...
39	.5	+	...	...	...	+	...	...	...	+	...	...
40	.5	...	...	+	+	...	...	...	...	...	+	...
41	.5	...	...	+	+	...	...	...	...	...	+	...
42	.5	...	...	+	+	...	...	...	...	...	+	...
43	.5	...	+	...	...	+	...	...	...	...	+	...
44	.5	+	...	...	...	+	...	...	...	+	...	...
45	.5	...	...	+	+	...	...	...	...	...	+	...
46	.5	...	...	+	+	...	...	...	...	+	...	...
47	.5	...	...	+	+	...	...	...	...	...	+	...
48	.5	...	...	+	...	+	...	...	...	...	+	...
49	.5	...	...	+	...	+	...	...	...	...	+	...
50	.5	+	...	...	...	...	...	+	...	...	+	...
51	.5	+	...	...	...	+	...	...	...	+	...	...
52	.5	+	...	...	...	+	...	...	...	+	...	...
53	.5	...	+	...	...	+	...	...	...	+	...	...
54	.5	...	...	+	+	...	...	...	...	...	+	...
55	.5	+	...	...	...	...	+	...	...	...	+	...
56	.5	+	...	...	...	...	+	...	...	+	...	...
57	.75	...	...	+	...	...	...	+	...	+	...	...
58	.75	+	...	...	...	...	+	...	...	+	...	...
59	.75	...	+	...	+	...	...	...	...	+	...	...
60	.75	...	...	+	+	...	...	...	...	+	...	...
61	.75	+	...	...	...	+	...	...	...	+	...	...
62	.75	...	...	+	+	...	...	...	...	...	+	...
63	.75	...	...	+	...	+	...	...	...	...	+	...
64	.75	...	...	+	...	...	...	+	...	+	...	...
65	.75	+	...	...	...	...	+	...	...	...	+	...

66	.75	...	...	+	...	+	...	...	+	...	...	...
67	.75	...	...	...	...	...	...	...	...	...	...	...
68	.75	+	...	...	...	...	+	...	+	...	...	...
69	0	...	...	+	...	...	...	+	...	+	...	...
70	0	...	...	+	+	...	...	...	...	+	...	...
71	0	+	...	...	...	...	+	...	+	...	...	...
72	0	+	...	...	...	...	+	...	...	+	...	...
73	0	+	...	...	...	...	+	...	+	...	...	...
74	0	...	...	+	...	...	+	...	+	...	...	...
75	0	...	...	...	...	...	...	...	...	...	...	...
76	0	...	+	...	...	...	+	...	+	...	...	...
77	0	...	...	+	...	...	+	...	+	...	...	...
78	0	...	...	...	...	...	...	...	...	...	...	...
79	0	...	...	+	...	...	+	...	+	...	...	...
80	0	...	...	...	...	...	...	...	...	...	...	...
81	0	...	...	...	...	...	...	...	...	...	...	...
82	0	...	...	+	...	...	+	...	...	+	...	...
83	1.0	...	...	+	...	+	...	...	+	...	...	...
84	1.0	...	...	+	...	...	+	...	+	...	...	...
85	1.0	...	...	+	...	...	+	...	+	...	...	...
86	1.0	...	...	+	...	...	...	+	+	...	...	...
87	1.0	...	+	...	...	...	+	...	+	...	...	...
88	1.0	...	...	...	...	...	...	...	...	...	...	...
89	1.0	+	...	...	...	...	+	...	+	...	...	...
90	1.0	+	...	...	...	...	+	...	+	...	...	...
91	1.0	+	...	...	...	+	...	...	...	+	...	...
92	1.0	...	...	+	...	+	...	...	+	...	...	...
93	1.0	+	...	...	...	...	...	+	+	...	...	...
94	1.0	...	...	+	...	...	+	...	+	...	...	...
95	1.0	...	...	+	...	...	+	...	+	...	...	...
96	1.0	...	...	+	...	+	...	...	...	+	...	...
97	1.0	...	...	+	...	+	...	...	+	...	...	...
98	1.0	...	...	+	...	+	...	...	+	...	...	...
99	1.0	...	+	...	...	+	...	...	+	...	...	...
100	1.0	...	...	...	...	...	...	...	...	...	...	...
101	1.0	...	...	+	...	+	...	...	...	+	...	...
102	1.0	...	...	+	...	+	...	...	+	...	...	...
103	1.0	...	...	+	...	...	+	...	+	...	...	...
104	1.0	...	...	+	...	...	+	...	+	...	...	...
105	1.0	...	+	...	...	...	+	...	+	...	...	...
106	1.5	...	...	+	...	...	+	...	+	...	...	...
107	1.5	...	...	+	...	...	...	+	+	...	...	...
108	1.5	...	...	+	...	...	+	...	+	...	...	...
109	1.5	...	...	...	...	...	...	...	...	...	...	...
110	1.5	...	...	+	...	...	+	...	+	...	...	...
111	1.5	...	...	+	...	...	+	...	+	...	...	...
112	1.5	...	...	+	...	...	+	...	+	...	...	...

66	.75	...	...	+	...	+	...	...	...	+	...	...
67	.75	...	...	...	...	...	...	...	...	...	...	...
68	.75	+	...	...	...	+	...	...	+	...	...	...
69	.75	...	...	+	...	+	...	...	...	...	+	...
70	.75	...	...	+	+	...	...	...	...	...	+	...
71	.75	+	...	...	...	...	...	+	+	...	...	...
72	.75	+	...	...	...	+	...	...	...	+	...	...
73	.75	+	...	...	...	...	...	+	...	+	...	...
74	.75	...	...	...	...	...	...	...	...	...	...	...
75	.75	+	...	...	...	...	+	...	...	+	...	...
76	.75	...	...	+	+	...	...	...	...	+	...	...
77	.75	...	...	+	...	+	...	...	...	+	...	...
78	.75	...	...	+	...	...	+	...	+	...	...	...
79	.75	+	...	...	...	...	...	+	...	+	...	...
80	.75	+	...	...	...	...	+	...	+	...	...	...
81	.75	...	...	+	...	...	+	...	...	+	...	...
82	.75	...	...	+	...	+	...	...	+	...	...	...
83	1.0	...	...	+	+	...	...	...	...	...	+	...
84	1.0	...	...	+	+	...	...	...	...	...	...	+
85	1.0	...	...	+	+	...	...	...	...	...	...	+
86	1.0	...	...	+	...	+	...	...	...	+	...	...
87	1.0	+	...	...	...	+	...	...	+	...	...	...
88	1.0	...	...	...	...	...	...	...	...	...	...	...
89	1.0	...	...	+	+	...	...	...	...	...	+	...
90	1.0	...	...	+	...	+	...	...	...	...	...	+
91	1.0	...	...	...	...	...	...	...	...	...	...	...
92	1.0	...	+	...	...	+	...	...	+	...	...	...
93	1.0	+	...	...	...	...	...	+	...	+	...	...
94	1.0	...	+	...	...	+	...	...	+	...	...	...
95	1.0	...	+	...	+	...	...	...	...	+	...	...
96	1.0	...	...	+	...	+	...	...	...	...	+	...
97	1.0	...	+	...	...	+	...	...	...	...	...	+
98	1.0	+	...	...	...	...	+	...	+	...	...	...
99	1.0	+	...	...	...	...	+	...	+	...	...	...
100	1.0	+	...	...	...	...	...	+	+	...	...	...
101	1.0	...	...	...	...	...	...	...	...	...	...	...
102	1.0	...	+	...	...	...	+	...	+	...	...	...
103	1.0	...	...	+	+	...	...	...	...	...	+	...
104	1.0	...	+	...	...	...	+	...	...	+	...	...
105	1.0	...	+	...	...	+	...	...	...	...	+	...
106	1.5	+	...	...	...	+	...	...	...	+	...	...
107	1.5	+	...	...	...	+	...	...	+	...	...	...
108	1.5	...	+	...	...	+	...	...	+	...	...	...
109	1.5	...	+	...	...	+	...	...	+	...	...	...
110	1.5	...	...	+	+	...	...	...	...	...	...	+
111	1.5	...	...	+	+	...	...	...	...	...	...	+
112	1.5	...	...	+	...	+	...	...	...	+	...	...
113	1.5	...	+	...	...	...	+	...	+	...	...	...

66	.75	+	...	...	...	...	+	...	...	...	+	...
67	.75	...	...	+	...	...	+	...	...	...	+	...
68	.75	+	...	...	...	...	+	...	...	+	...	...
69	.75	+	...	...	...	...	+	...	...	...	+	...
70	.75	...	...	+	...	+	...	...	+	...	...	...
71	.75	+	...	...	...	...	...	+	...	...	+	...
72	.75	...	...	...	...	...	...	...	...	...	...	...
73	.75	...	+	...	...	+	...	...	...	...	+	...
74	.75	+	...	...	+	...	...	...	...	...	+	...
75	.75	+	...	...	...	...	+	...	...	...	+	...
76	.75	+	...	...	...	+	...	...	...	...	...	+
77	.75	...	...	+	...	...	+	...	+	...	...	...
78	1.0	...	...	+	...	...	...	+	...	+	...	...
79	1.0	...	...	+	...	...	+	...	...	...	...	+
80	1.0	+	...	...	...	...	+	...	...	...	+	...
81	1.0	...	...	+	+	...	...	...	...	...	+	...
82	1.0	+	...	...	...	...	+	...	...	...	...	+
83	1.0	+	...	...	...	...	+	...	...	...	+	...
84	1.0	...	...	+	...	+	...	...	...	...	+	...
85	1.0	...	...	+	...	...	...	+	...	...	...	+
86	1.0	...	...	+	...	+	...	...	...	...	+	...
87	1.0	...	...	+	...	+	...	...	...	...	...	+
88	1.0	...	+	...	+	...	...	...	...	...	...	+
89	1.0	...	+	...	+	...	...	...	...	...	...	+
90	1.0	...	...	+	...	...	+	...	...	+	...	...
91	1.0	...	...	+	...	+	...	...	...	...	...	+
92	1.0	...	...	+	...	...	...	+	...	...	+	...
93	1.0	+	...	...	...	+	...	...	+	...	...	...
94	1.0	+	...	...	...	...	+	...	...	+	...	...
95	1.0	...	...	+	+	...	...	...	...	...	+	...
96	1.0	...	...	+	...	+	...	...	...	...	+	...
97	1.0	...	...	...	...	...	...	...	...	...	...	...
98	1.0	...	+	...	...	...	+	...	+	...	...	...
99	1.5	...	...	+	...	+	...	...	...	...	+	...
100	1.5	...	+	...	...	...	...	+	...	+	...	...
101	1.5	+	...	...	...	+	...	...	...	+	...	...
102	1.5	+	...	...	...	+	...	...	...	+	...	...
103	1.5	+	...	...	...	+	...	...	...	...	...	+
104	1.5	...	...	+	...	...	+	...	...	...	...	+
105	1.5	...	...	+	...	+	...	...	...	...	+	...
106	1.5	...	...	+	...	...	...	+	...	+	...	...

TABLE 34.—*Record of observations of reaction, color, and consistence of the feces*—Continued.

Subject I K.

Day of experiment.	Daily dose of saccharin.	Reaction. Alkaline.	Reaction. Neutral.	Reaction. Acid.	Color. Light brown.	Color. Brown.	Color. Dark brown.	Color. Charcoal.	Consistence. Hard.	Consistence. Well formed.	Consistence. Little formed.	Consistence. Not formed.
	Gms.											

Subject II O.

Day of experiment.	Daily dose of saccharin.	Reaction. Alkaline.	Reaction. Neutral.	Reaction. Acid.	Color. Light brown.	Color. Brown.	Color. Dark brown.	Color. Charcoal.	Consistence. Hard.	Consistence. Well formed.	Consistence. Little formed.	Consistence. Not formed.
	Gms.											
114	1.5	+	...	...	...	...	...	+	+	...	...	...
115	1.5	...	...	...	...	...	...	...	...	...	...	...
116	1.5	...	...	+	...	...	+	...	+	...	...	...
117	1.5	...	...	...	...	...	...	...	...	...	...	...
118	1.5	...	...	+	...	+	...	...	...	...	+	...
119	1.5	...	+	...	+	...	...	...	+	...	...	...
120	1.5	...	...	+	+	...	...	...	...	...	...	+
121	1.5	...	...	+	...	...	...	+	...	...	...	+
122	1.5	...	+	...	...	+	...	...	...	+	...	...
123	1.5	...	...	...	...	...	...	...	...	...	...	...
124	1.5	...	...	+	...	+	...	...	...	...	+	...
125	1.5	...	...	+	+	...	...	...	...	...	...	+
126	1.5	...	...	+	...	+	...	...	+	...	...	...
127	1.5	+	...	...	+	...	...	...	...	...	...	+
128	1.5	...	...	+	...	+	...	...	...	...	+	...
129	1.5	...	...	+	+	...	...	...	...	...	...	+
130	1.5	...	...	...	...	...	...	...	...	...	...	...
131	1.5	...	...	+	...	+	...	...	+	...	...	...
132	1.5	...	...	+	...	...	+	...	+	...	...	...
133	1.5	...	...	+	+	...	...	...	...	...	+	...
134	1.5	...	+	...	...	...	...	+	...	...	...	+
135	1.5	...	...	...	...	...	...	...	...	...	...	...
136	1.5	...	+	...	...	+	...	...	+	...	...	...
137	1.5	...	...	...	...	...	...	...	...	...	...	...
138	1.5	...	...	+	...	+	...	...	+	...	...	...
139	1.5	...	...	+	+	...	...	...	...	...	+	...
140	1.5	+	...	...	+	...	...	...	...	...	...	+
141	1.5	...	...	+	+	...	...	...	...	...	...	+
142	1.5	...	+	...	...	...	...	+	...	...	...	+
143	1.5	...	...	...	...	...	...	...	...	...	...	...
144	1.5	...	...	+	...	+	...	...	+	...	...	...
145	1.5	+	...	...	...	+	...	...	+	...	...	...
146	1.5	+	...	...	...	+	...	...	...	+	...	...
147	1.5	...	...	+	...	+	...	...	...	+	...	...

Subject III N.

Day of experiment.	Daily dose of saccharin.	Reaction. Alkaline.	Reaction. Neutral.	Reaction. Acid.	Color. Light brown.	Color. Brown.	Color. Dark brown.	Color. Charcoal.	Consistence. Hard.	Consistence. Well formed.	Consistence. Little formed.	Consistence. Not formed.
	Gms.											
107	1.5	+	...	...	...	+	...	...	...	+	...	...
108	1.5	...	...	+	...	+	...	...	...	...	...	+
109	1.5	...	...	+	+	...	...	...	...	...	+	...
110	1.5	...	...	+	...	+	...	...	...	...	...	+
111	1.5	+	...	...	...	+	...	...	...	+	...	...
112	1.5	+	...	...	...	+	...	...	...	...	+	...
113	1.5	...	...	+	...	...	...	+	...	+	...	...
114	1.5	...	...	+	...	+	...	...	...	...	+	...
115	1.5	...	...	+	+	...	...	...	...	...	...	+
116	1.5	...	+	...	+	...	...	...	...	...	+	...
117	1.5	...	...	+	+	...	...	...	...	+	...	...
118	1.5	...	+	...	...	+	...	...	+	...	...	...
119	1.5	...	...	+	...	+	...	...	...	...	+	...
120	1.5	...	...	+	...	+	...	...	...	...	+	...
121	1.5	...	...	+	...	...	...	+	...	...	+	...
122	1.5	...	...	+	+	...	...	...	...	...	+	...
123	1.5	...	+	...	...	+	...	...	...	+	...	...
124	1.5	...	+	...	...	+	...	...	...	+	...	...
125	1.5	...	...	+	+	...	...	...	...	...	+	...
126	1.5	...	...	...	...	...	...	...	...	...	...	...
127	1.5	...	...	+	...	+	...	...	...	...	+	...
128	1.5	+	...	...	...	+	...	...	...	+	...	...
129	1.5	...	...	+	...	+	...	...	...	+	...	...
130	1.5	...	+	...	...	+	...	...	...	+	...	...
131	1.5	+	...	...	...	+	...	...	...	+	...	...
132	1.5	...	...	+	...	+	...	...	...	+	...	...
133	1.5	...	...	+	+	...	...	...	...	...	+	...
134	1.5	+	...	...	...	...	...	+	...	...	+	...
135	1.5	...	...	...	...	...	...	...	...	...	...	...
136	1.5	...	...	+	...	+	...	...	...	...	+	...
137	1.5	...	...	+	...	+	...	...	...	...	+	...
138	1.5	...	...	+	+	...	...	...	...	...	...	+
139	1.5	...	...	+	+	...	...	...	...	...	...	+
140	1.5	...	...	+	...	+	...	...	...	...	+	...

113	0	...	...	...	...	...	...	...	...	...	...	...
114	0	...	...	+	...	...	+	...	+	...	...	...
115	0	...	...	+	...	...	...	+	+	...	...	...
116	0	...	...	+	...	...	+	...	...	+	...	...
117	0	...	...	+	...	...	+	...	...	+	...	...
118	0	...	+	...	...	...	+	...	+	...	...	...
119	0	...	...	+	...	...	+	...	+	...	...	...
120	0	...	...	+	...	...	+	...	+	...	...	...
121	0	...	...	+	...	...	+	...	+	...	...	...
122	0	...	...	+	...	...	+	...	+	...	...	...
123	0	...	...	...	...	...	...	...	...	...	...	...
124	0	+	...	...	...	...	...	+	+	...	...	...
125	0	...	...	+	...	...	+	...	+	...	...	...
126	0	...	+	...	...	...	+	...	+	...	...	...
127	0	...	+	...	...	...	+	...	+	...	...	...
128	0	...	...	+	...	...	+	...	+	...	...	...
129	0	...	...	...	...	...	...	...	...	...	...	...

148	1.5	...	...	+	...	...	...	+	...	+	...	...
149	1.5	...	+	...	...	+	...	...	+	...	...	...
150	1.5	...	...	+	+	...	...	...	+	...	...	...
151	0	...	...	+	...	...	+	...	...	+	...	...
152	0	...	...	+	+	...	...	...	...	...	...	+
153	0	...	...	+	...	+	...	...	...	+	...	...
154	0	+	...	...	...	+	...	...	...	+	...	...
155	0	...	...	+	...	+	...	...	+	...	...	...
156	0	...	...	+	...	+	...	...	...	...	+	...
157	0	+	...	...	...	+	...	...	...	...	+	...
158	0	+	...	...	...	...	...	+	+	...	...	...
159	0	...	...	+	+	...	...	...	...	...	...	+
160	0	...	...	+	+	...	...	...	...	...	...	+
161	0	+	...	...	+	...	...	...	+	...	...	...
162	0	+	...	...	...	+	...	...	...	+	...	...
163	0	+	...	...	...	+	...	...	...	+	...	...
164	0	+	...	...	...	+	...	...	+	...	...	...

141	0	...	...	+	...	...	...	+	...	...	+	...
142	0	...	...	+	...	+	...	...	...	...	+	...
143	0	+	...	...	+	...	...	...	+	...	...	...
144	0	...	...	+	...	+	...	...	+	...	...	...
145	0	...	...	+	...	+	...	...	...	+	...	...
146	0	...	...	...	...	...	...	...	...	...	...	...
147	0	...	...	+	...	+	...	...	...	+	...	...
148	0	...	...	+	...	+	...	...	...	+	...	...
149	0	...	...	+	...	...	+	...	...	+	...	...
150	0	...	+	...	...	+	...	...	...	+	...	...
151	0	...	+	...	+	...	...	...	...	+	...	...
152	0	...	...	+	...	+	...	...	...	...	+	...
153	0	...	...	+	...	+	...	...	+	...	...	...
154	0	...	...	+	+	...	...	...	...	...	+	...

TABLE 35.—*Average of observations of reaction, color, and consistence of the feces.*

Days of experiment.	Daily dose of saccharin.	Total number of observations.	Reaction. Observations recorded as follows: Alkaline.	Neutral.	Acid.	Reaction. Average.	Color. Total number of observations.	Color. Observations recorded as follows: Light brown.	Brown.	Dark brown.	Color. Average.	Consistence. Total number of observations.	Consistence. Observations recorded as follows: Hard.	Well formed.	Little formed.	Not formed.	Consistence. Average.
SUBJECT I K.																	
	Gms.																
1–14	0	13	13			Alkaline	11		4	7	Dark brown	13	7	3	2	1	Well formed.
15–35	0.3	18	18			do	15	1	7	7	Brown	18	14	3	1		Hard.
36–56	.5	19	19			do	16	1	5	10	Dark brown	19	15	4			Do.
57–68	.75	10	6		4	Neutral	8	1	4	3	Brown	10	6	2	2		Well formed.
69–82	0	10	3	1	6	do	9	1		8	Dark brown	10	6	4			Hard.
83–105	1.0	21	4	3	14	Neutral to acid	19		9	10	do	21	18	3			Do.
106–112	1.5	6			6	Acid	5		5		do	6	6				Do.
113–129	0	14	1	3	10	do	12		12		do	14	12	2			Do.
SUBJECT II O.																	
1–14	0	14	9	1	4	Neutral	13	4	8	1	Brown	14		7	4	3	Well formed.
15–35	0.3	18	12		6	do	16	2	10	4	do	18	5	1	6	3	Do.
36–56	.5	17	15		2	Alkaline	13	1	8	4	do	17	7	4	5	1	Do.
57–82	.75	23	12		11	Neutral	22	2	11	9	do	23	7	11	5		Do.
83–105	1.0	20	5	7	8	do	18	6	8	4	do	20	7	4	5	4	Do.
106–150	1.5	38	7	9	22	Neutral to acid	33	12	18	3	do	38	16	6	5	11	Do.
151–161	0	14	7		7	Neutral	13	4	8	1	do	14	4	5	2	3	Do.
SUBJECT III N.																	
1–14	0	14	11	1	2	Alkaline	12	5	7		Brown	14	1		8	5	Little formed.
15–35	0.3	21	16	2	3	do	18	5	12	1	do	21		12	7	2	Well to little formed.
36–56	.5	21	10	2	9	Neutral	18	7	9	2	do	21			10	11	Little to not formed.
57–77	.75	20	10	2	8	do	17	4	5	8	do	20	2	7	10	1	Well to little formed.
78–98	1.0	20	5	3	12	Neutral to acid	17	4	6	7	do	20	2	3	8	7	Little formed.
99–140	1.5	40	9	6	25	do	35	9	25	1	do	40	1	15	17	7	Do.
141–154	0	13	1	2	10	Acid	12	3	8	1	do	13	3	6	4		Well formed.

REACTION.

The reaction of the feces in the cases of all the subjects was apparently influenced by the taking of saccharin. Instead of remaining a reaction characteristic of the normal subject at the outset, namely, slightly alkaline, neutral, or faintly acid, the feces under the influence of the saccharin in large doses showed an unmistakable tendency to vary in the direction of increased acidity or diminished alkalescence. This can be seen from a study of the table of daily records (Table 76) and of Tables 34 and 35, especially the latter, giving the averages of observations for the different periods. In the dosage of 0.3 and 0.5 gram of saccharin daily there was no appreciable alteration in the acidity of the feces, but when 0.75 gram of saccharin was taken daily, and more markedly when the dosage was greater, there was noticed an increase in the frequency of a neutral or acid reaction in the feces.

In seeking for an explanation of this undoubted tendency to an increase in the free acid of the intestinal contents or feces we were at first inclined to suspect that the presence of saccharin in the feces might be in itself adequate to account for the phenomenon, although such an explanation is somewhat difficult to harmonize with theoretical considerations, for, since the saccharin was uniformly administered in the neutral form of the sodium salt, the acidity of saccharin itself could hardly be assumed to play a part. Inasmuch, however, as it was found that a portion at least of the observed saccharin (presumably salt) is resecreted into the intestine, there remained the possibility that some free saccharin (assuming that some saccharin as such was in the blood) might in this way pass into the intestine, and this is still, we believe, a possibility, in spite of the fact that it is the rule for acid in the blood to be promptly neutralized there before excretion, either by the urine or the feces. But it is a peculiarity of our cases that the heightened acidity to which we refer is continued well into the after periods of the experiment. Hence, we are compelled to draw the conclusion that although saccharin seems to be the cause of the heightened acidity of the feces, it can hardly operate solely through the presence of saccharin *per se*, but must act at least in part in an indirect manner at present not known to us.

It may be noted here that the increase in indican as well as in aromatic oxyacids took place at a time when the reaction of the feces was acid or was less alkaline than normal. It will thus be seen that the acid reaction of the contents of the bowel did not lessen the activity of the putrefactive bacteria in the intestine.

COLOR.

The color of the feces varied from brown to dark brown in the case of all the subjects. Occasionally the color would become yellow, but this occurred seldom and irregularly. The administration of saccharin had no effect on the color of the feces.

CONSISTENCE.

The consistence of the feces is noted for each day of the experiment. This varied directly with the percentage of water present. While fluctuating from day to day the mean records for each subject are nearly uniform for all the periods. In the case of subject III N the feces, which had been frequently unformed or little formed during the fore period and all the saccharin periods, became harder with a lower content of water in the after period.

WATER.

The mean percentage of water in the feces of subjects II O and III N varied but slightly throughout the period of observation, and such changes as occurred had no relation to the saccharin dosage. In the case of subject I K there was but little change in the content of water in the feces until the last saccharin period, when the percentage of water became lower. In the after period it became still lower.

The daily percentage of water in the feces is given in the table of daily records (Table 76). The mean percentages are recorded in Table 36.

TABLE 36.—*Average content of water in the feces per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Water in feces.	Days of experiment.	Daily dose of saccharin.	Water in feces.	Days of experiment.	Daily dose of saccharin.	Water in feces.
	Gram.	*Per ct.*		*Gram.*	*Per ct.*		*Gram.*	*Per ct.*
1–7	0	76.6	1–7	0	83.9	1–7	0	82.1
8–14	0	77.5	8–14	0	82.1	8–14	0	83.6
Av., 14 days		77.1	Av., 14 days		83.0	Av., 14 days		82.8
15–21	0.3	76.1	15–21	0.3	84.8	15–21	0.3	84.5
22–28	.3	75.6	22–28	.3	81.8	22–28	.3	81.4
29–35	.3	73.8	29–35	.3	85.2	29–35	.3	82.7
Av., 21 days		75.2	Av., 21 days		83.9	Av., 21 days		82.9
36–42	.5	79.0	36–42	.5	83.9	36–42	.5	83.5
43–49	.5	77.6	43–49	.5	84.7	43–49	.5	82.5
50–56	.5	75.0	50–56	.5	80.5	50–56	.5	81.4
Av., 21 days		77.2	Av., 21 days		83.0	Av., 21 days		82.5

TABLE 36.—*Average content of water in the feces per day*—Continued.

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Water in feces.	Days of experiment.	Daily dose of saccharin.	Water in feces.	Days of experiment.	Daily dose of saccharin.	Water in feces.
	Grams.	*Per ct.*		*Grams.*	*Per ct.*		*Grams.*	*Per ct.*
57–63	0.75	77.9	57–63	0.75	82.6	57–63	0.75	80.4
64–68	.75	76.7	64–70	.75	83.0	64–70	.75	82.2
			71–77	.75	80.0	71–77	.75	82.9
Av., 12 days		77.4	78–82	.75	82.4			
69–75	0	75.4						
76–82	0	75.0						
Av., 14 days		75.2	Av., 26 days		82.0	Av., 21 days		81.8
83–84	1.0	75.0	83–91	1.0	84.6	78–84	1.0	85.2
85–91	1.0	76.0	92–98	1.0	82.0	85–91	1.0	82.3
92–98	1.0	76.3	99–105	1.0	79.8	92–98	1.0	79.1
99–105	1.0	77.3						
Av., 23 days		76.4	Av., 23 days		82.3	Av., 21 days		82.2
106–112	1.5	73.2	106–112	1.5	80.1	99–105	1.5	81.9
			113–119	1.5	79.7	106–112	1.5	82.1
			120–126	1.5	81.5	113–119	1.5	81.4
			127–133	1.5	82.1	120–126	1.5	82.7
			134–140	1.5	81.8	127–133	1.5	80.0
			141–147	1.5	81.2	134–140	1.5	85.1
			148–150	1.5	79.4			
Av., 7 days		73.2	Av., 45 days		81.0	Av., 42 days		82.2
113–122	0	71.1	151–157	0	81.8	141–147	0	80.6
123–129	0	72.3	158–164	0	83.0	148–154	0	81.7
Av., 17 days		71.6	Av., 14 days		82.4	Av., 14 days		81.2

INDOL, SKATOL, AND HYDROBILIRUBIN.

Observations were made to discover whether the ingestion of saccharin affected the digestion so as to lead to an increase in the putrefactive processes in the intestine. Tests were made in the feces for evidence of certain putrefactive products, including indol, skatol, hydrobilirubin, and hydrogen sulphide.

An examination for indol and skatol in the acid distillate from the feces of each subject was made three times each week throughout the periods of the experiment. The test for hydrobilirubin was made daily. A record of the various observations is given in Tables 37 and 38. Table 37 embodies the individual observations, while Table 38 records the observations in the form of averages for the various periods.

TABLE 37.—*Record of observations of indol, skatol, and hydrobilirubin in the feces.*

Subject I K.

Day of experiment.	Daily dose of saccharin.	Indol.				Skatol.				Hydrobilirubin.			
		Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.
	Gm.												
1	0	...	+	...	...	...	+	...	...	...	...	+	...
2	0	...	...	...	...	...	...	...	...	...	...	+	...
3	0	...	+	...	...	...	+	...	...	...	+	...	...
4	0	...	...	...	...	...	...	...	...	...	+	...	...
5	0	...	+	...	...	...	+	...	...	...	...	+	...
6	0	...	...	...	...	...	...	...	...	...	+	...	...
7	0	...	+	...	...	...	+	...	...	...	+	...	...
8	0	...	...	...	...	...	...	...	...	...	+	...	...
9	0	...	...	+	...	...	+	...	...	...	+	...	...
10	0	...	...	...	...	...	...	...	...	...	...	...	...
11	0	...	...	...	...	...	...	...	...	...	+	...	...
12	0	...	...	...	...	...	...	...	...	...	+	...	...
13	0	...	...	+	...	...	+	...	...	...	+	...	...
14	0	...	...	...	...	...	...	...	...	...	+	...	...
15	0.3	...	+	...	...	...	...	+	...	...	+	...	...
16	.3	...	...	...	...	...	...	...	...	...	+	...	...
17	.3	...	+	...	...	...	+	...	...	+	...	...	...
18	.3	...	...	...	...	...	...	...	...	...	...	...	...
19	.3	...	...	...	...	...	...	...	...	+	...	...	...
20	.3	...	+	...	...	...	+	...	...	+	...	...	...
21	.3	...	...	...	...	...	...	...	...	+	...	...	...
22	.3	...	...	...	...	...	...	...	...	+	...	...	...
23	.3	...	...	+	...	...	...	+	...	+	...	...	...
24	.3	...	...	+	...	...	+	...	...	+	...	...	...
25	.3	...	...	...	...	...	...	...	...	+	...	...	...
26	.3	...	...	...	...	...	...	...	...	+	...	...	...
27	.3	...	...	...	...	...	...	...	...	...	...	...	...
28	.3	...	...	...	...	...	...	...	...	+	...	...	...
29	.3	...	+	...	...	...	+	...	...	+	...	...	...
30	.3	...	...	...	...	...	...	...	...	+	...	...	...
31	.3	...	...	+	...	...	+	...	...	+	...	...	...
32	.3	...	...	...	...	...	...	...	...	...	...	...	...
33	.3	...	...	...	...	...	...	...	...	+	...	...	...

Subject II O.

Day of experiment.	Daily dose of saccharin.	Indol.				Skatol.				Hydrobilirubin.			
		Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.
	Gm.												
1	0	...	...	+	...	...	...	+	...	...	...	...	+
2	0	...	...	...	...	...	...	...	...	...	...	...	+
3	0	...	...	+	...	...	+	...	...	...	...	+	...
4	0	...	...	...	...	...	...	...	...	...	...	+	...
5	0	...	+	...	...	...	+	...	...	...	...	+	...
6	0	...	...	...	...	...	...	...	...	...	+	...	...
7	0	...	...	+	...	...	...	+	...	...	+	...	...
8	0	...	...	...	...	...	...	...	...	+	...	...	...
9	0	...	...	+	...	...	+	...	...	+	...	...	...
10	0	...	+	...	...	...	+	...	...	...	+	...	...
11	0	...	...	...	...	...	...	...	...	+	...	...	...
12	0	...	...	...	...	...	...	...	...	+	...	...	...
13	0	...	+	...	...	...	+	...	...	...	+	...	...
14	0	...	...	...	...	...	...	...	...	...	+	...	...
15	0.3	...	...	+	...	...	...	+	...	+	...	...	...
16	.3	...	...	...	...	...	...	...	...	+	...	...	...
17	.3	...	...	+	...	...	...	+	...	...	+	...	...
18	.3	...	...	...	...	...	...	...	...	...	...	...	...
19	.3	...	...	...	...	...	...	...	...	+	...	...	...
20	.3	...	...	+	...	...	...	+	...	...	+	...	...
21	.3	...	...	...	...	...	...	...	...	+	...	...	...
22	.3	...	...	...	...	...	...	...	...	+	...	...	...
23	.3	...	...	+	...	...	...	...	+	+	...	...	...
24	.3	...	...	...	...	...	...	...	...	...	...	...	...
25	.3	...	...	...	...	...	...	...	...	+	...	...	...
26	.3	...	...	...	...	...	...	...	...	+	...	...	...
27	.3	...	...	+	...	...	...	...	+	+	...	...	...
28	.3	...	...	...	...	...	...	...	...	+	...	...	...
29	.3	...	...	...	+	...	...	...	+	...	+	...	...
30	.3	...	...	...	...	...	...	...	...	+	...	...	...
31	.3	...	...	...	+	...	...	+	...	...	+	...	...
32	.3	...	...	...	...	...	...	...	...	...	...	...	...
33	.3	...	...	...	...	...	...	...	...	+	...	...	...

Subject III N.

Day of experiment.	Daily dose of saccharin.	Indol.				Skatol.				Hydrobilirubin.			
		Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.
	Gm.												
1	0	+	...	...	...	+	...	...	...	+	...	...	...
2	0	...	...	...	...	...	...	...	...	+	...	...	...
3	0	...	...	+	...	...	+	...	...	+	...	...	...
4	0	...	...	...	...	...	...	...	...	+	...	...	...
5	0	...	+	...	...	...	+	...	...	+	...	...	...
6	0	...	...	...	...	...	...	...	...	+	...	...	...
7	0	...	...	...	...	...	...	...	...	+	...	...	...
8	0	...	...	+	...	...	...	...	+	+	...	...	...
9	0	...	...	...	...	...	...	...	...	+	...	...	...
10	0	...	...	...	...	...	...	...	...	+	...	...	...
11	0	...	+	...	...	...	+	...	...	...	+	...	...
12	0	...	...	+	...	...	+	...	...	...	+	...	...
13	0	...	...	...	...	...	...	...	...	...	+	...	...
14	0	...	...	...	...	...	...	...	...	...	+	...	...
15	0.3	...	+	...	...	...	+	...	...	+	...	...	...
16	.3	...	...	...	...	...	...	...	...	+	...	...	...
17	.3	...	...	+	...	...	+	...	...	...	+	...	...
18	.3	...	...	...	...	...	...	...	...	...	+	...	...
19	.3	...	...	+	...	...	+	...	...	...	+	...	...
20	.3	...	...	...	...	...	...	...	...	...	+	...	...
21	.3	...	...	...	...	...	...	...	...	...	+	...	...
22	.3	...	+	...	...	...	+	...	...	...	+	...	...
23	.3	...	...	+	...	...	+	...	...	...	+	...	...
24	.3	...	...	...	...	...	...	...	...	...	+	...	...
25	.3	...	...	...	...	...	...	...	...	...	+	...	...
26	.3	...	...	+	...	...	+	...	...	+	...	...	...
27	.3	...	...	...	...	...	...	...	...	+	...	...	...
28	.3	...	...	...	...	...	...	...	...	...	+	...	...
29	.3	...	...	+	...	...	+	...	...	+	...	...	...
30	.3	...	...	...	...	...	...	...	...	+	...	...	...
31	.3	...	...	+	...	...	+	...	...	...	+	...	...
32	.3	...	...	...	...	...	...	...	...	...	+	...	...
33	.3	...	...	+	...	...	+	...	...	+	...	...	...

34	.3	...	+	...	...	...	...	+	...	+	...	...	...
35	.3	...	+	...	...	...	+	...	...	...	+	...	...
36	.5	...	...	...	...	...	...	...	...	...	+	...	...
37	.5	...	...	...	...	...	...	...	...	+	...	...	...
38	.5	...	+	...	...	...	+	...	...	+	...	...	...
39	.5	...	...	...	...	...	...	...	...	...	...	...	...
40	.5	...	...	...	...	...	...	...	...	+	...	...	...
41	.5	...	+	...	...	...	+	...	...	+	...	...	...
42	.5	...	...	...	...	...	...	...	...	+	...	...	...
43	.5	...	...	+	...	...	...	...	+	+	...	...	...
44	.5	...	...	...	...	...	...	...	...	+	...	...	...
45	.5	...	...	...	+	...	+	...	...	...	+	...	...
46	.5	...	...	...	...	...	...	...	...	...	...	...	...
47	.5	...	...	...	...	...	...	...	...	...	+	...	...
48	.5	...	...	+	...	...	+	...	...	...	+	...	...
49	.5	...	...	...	...	...	...	...	...	+	...	...	...
50	.5	...	+	...	...	...	...	+	...	...	+	...	...
51	.5	...	...	...	...	...	...	...	...	+	...	...	...
52	.5	...	...	...	+	...	...	...	+	+	...	...	...
53	.5	...	...	...	...	...	...	...	...	+	...	...	...
54	.5	...	...	...	...	...	...	...	...	+	...	...	...
55	.5	...	+	...	...	...	...	+	...	+	...	...	...
56	.5	...	...	...	...	...	...	...	...	+	...	...	...
57	.75	...	+	...	...	...	...	+	...	+	...	...	...
58	.75	...	...	...	...	...	...	...	...	+	...	...	...
59	.75	...	...	+	...	...	+	...	...	...	+	...	...
60	.75	...	...	...	...	...	...	...	...	...	...	...	...
61	.75	...	...	...	...	...	...	...	...	+	...	...	...
62	.75	...	...	+	...	...	...	...	+	...	+	...	...
63	.75	...	...	...	...	...	...	...	...	...	+	...	...
64	.75	...	...	+	...	...	...	+	...	+	...	...	...
65	.75	...	...	...	...	...	...	...	...	+	...	...	...
66	.75	...	...	+	...	+	...	...	...	+	...	...	...
67	.75	...	...	...	...	...	...	...	...	...	...	...	...
68	.75	...	...	...	...	...	...	...	...	+	...	...	...
69	0	...	+	...	...	...	...	+	...	+	...	...	...
70	0	...	...	...	...	...	...	...	...	...	+	...	...
71	0	...	...	...	+	...	+	...	...	...	+	...	...
72	0	...	...	...	...	...	...	...	...	+	...	...	...
73	0	...	+	...	...	...	+	...	...	+	...	...	...
74	0	...	...	...	...	...	...	...	...	...	+	...	...
75	0	...	...	...	...	...	...	...	...	...	...	...	...
76	0	...	+	...	...	...	+	...	...	...	+	...	...
77	0	...	...	...	...	...	...	...	...	...	...	...	+
78	0	...	...	...	...	...	...	...	...	...	...	...	...
79	0	...	+	...	...	...	...	+	...	...	+	...	...
80	0	...	...	...	...	...	...	...	...	...	...	...	...
81	0	...	...	...	...	...	...	...	...	...	...	...	...
82	0	...	...	...	...	...	...	...	...	...	+	...	...

34	.3	...	+	...	...	...	...	+	...	...	+	...	...
35	.3	...	...	+	...	...	+	...	...	...	+	...	...
36	.5	...	...	...	...	...	...	...	...	+	...	...	...
37	.5	...	...	...	...	...	...	...	...	+	...	...	...
38	.5	...	...	+	...	...	...	...	+	+	...	...	...
30	.5	...	...	...	...	...	...	...	...	...	...	...	...
40	.5	...	...	...	...	...	...	...	...	...	+	...	...
41	.5	...	...	+	...	...	...	...	+	+	...	...	...
42	.5	...	...	...	...	...	...	...	...	+	...	...	...
43	.5	...	...	...	+	...	...	+	...	+	...	...	...
44	.5	...	...	...	...	...	...	...	...	...	+	...	...
45	.5	...	...	...	...	...	...	...	...	...	...	...	...
46	.5	...	...	...	...	...	...	...	...	+	...	...	...
47	.5	...	...	...	...	...	...	...	...	+	...	...	...
48	.5	...	...	...	...	...	...	...	...	...	...	...	...
49	.5	...	...	...	...	...	...	...	...	+	...	...	...
50	.5	...	...	+	...	...	...	+	...	+	...	...	...
51	.5	...	...	...	...	...	...	...	...	+	...	...	...
52	.5	...	...	...	+	...	...	...	+	+	...	...	...
53	.5	...	...	...	...	...	...	...	...	+	...	...	...
54	.5	...	...	...	...	...	...	...	...	...	...	...	...
55	.5	...	...	+	...	...	+	...	...	+	...	...	...
56	.5	...	...	...	...	...	...	...	...	+	...	...	...
57	.75	...	...	+	...	...	...	...	+	+	...	...	...
58	.75	...	...	...	...	...	...	...	...	+	...	...	...
59	.75	...	...	...	+	...	...	...	+	+	...	...	...
60	.75	...	...	...	...	...	...	...	...	...	...	...	...
61	.75	...	...	...	...	...	...	...	...	...	+	...	...
62	.75	...	...	...	+	...	...	...	+	...	+	...	...
63	.75	...	...	...	...	...	...	...	...	...	+	...	...
64	.75	...	...	+	...	...	...	+	...	...	+	...	...
65	.75	...	...	...	...	...	...	...	...	...	+	...	...
66	.75	...	...	...	+	...	+	...	...	...	+	...	...
67	.75	...	...	...	...	...	...	...	...	...	...	...	...
68	.75	...	...	...	...	...	...	...	...	...	+	...	...
69	.75	...	...	+	...	...	...	+	...	...	+	...	...
70	.75	...	...	...	...	...	...	...	...	...	+	...	...
71	.75	...	...	+	...	...	...	+	...	+	...	...	...
72	.75	...	...	...	...	...	...	...	...	...	+	...	...
73	.75	...	+	...	...	...	...	+	...	...	+	...	...
74	.75	...	...	...	...	...	...	...	...	...	...	...	...
75	.75	...	...	...	...	...	...	...	...	+	...	...	...
76	.75	...	+	...	...	...	+	...	...	...	+	...	...
77	.75	...	...	...	...	...	...	...	...	...	+	...	...
78	.75	...	...	...	...	...	...	...	...	+	...	...	...
79	.75	...	...	+	...	...	...	+	...	+	...	...	...
80	.75	...	...	+	...	...	...	...	+	+	...	...	...
81	.75	...	...	...	...	...	...	...	...	...	+	...	...
82	.75	...	...	...	...	...	...	...	...	...	+	...	...

34	.3	...	...	...	...	...	...	...	...	...	+	...	...
35	.3	...	...	...	...	...	...	...	...	...	+	...	...
36	.5	...	...	+	...	...	+	...	...	+	...	...	...
37	.5	...	...	...	...	...	...	...	...	+	...	...	...
38	.5	...	+	...	...	...	+	...	...	+	...	...	...
39	.5	...	...	...	...	...	...	...	...	...	+	...	...
40	.5	...	...	+	...	+	...	...	...	...	+	...	...
41	.5	...	...	...	...	...	...	...	...	...	+	...	...
42	.5	...	...	...	...	...	...	...	...	+	...	...	...
43	.5	...	...	+	...	...	+	...	...	+	...	...	...
44	.5	...	...	...	...	...	...	...	...	...	+	...	...
45	.5	...	...	+	...	...	+	...	...	...	...	+	...
46	.5	...	...	...	...	...	...	...	...	...	+	...	...
47	.5	...	...	+	...	...	+	...	...	+	...	...	...
48	.5	...	...	...	...	...	...	...	...	+	...	...	...
49	.5	...	...	...	...	...	...	...	...	+	...	...	...
50	.5	...	...	+	...	...	+	...	...	+	...	...	...
51	.5	...	...	...	...	...	...	...	...	...	+	...	...
52	.5	...	...	...	+	+	...	...	...	...	+	...	...
53	.5	...	...	...	...	...	...	...	...	...	...	+	...
54	.5	...	...	...	+	...	+	...	...	...	+	...	...
55	.5	...	...	...	...	...	...	...	...	...	+	...	...
56	.5	...	...	...	...	...	...	...	...	...	+	...	...
57	.75	...	...	+	...	...	+	...	...	+	...	...	...
58	.75	...	...	...	...	...	...	...	...	...	+	...	...
59	.75	...	...	+	...	...	...	...	+	...	...	+	...
60	.75	...	...	...	...	...	...	...	...	...	...	+	...
61	.75	...	...	+	...	...	+	...	...	...	+	...	...
62	.75	...	...	...	...	...	...	...	...	...	+	...	...
63	.75	...	...	...	...	...	...	...	...	...	+	...	...
64	.75	...	+	...	...	...	+	...	...	+	...	...	...
65	.75	...	...	...	...	...	...	...	...	+	...	...	...
66	.75	...	...	...	...	...	...	...	...	...	...	+	...
67	.75	...	+	...	...	...	...	+	...	...	+	...	...
68	.75	...	...	+	...	...	+	...	...	...	...	+	...
69	.75	...	...	...	...	...	...	...	...	...	+	...	...
70	.75	...	...	...	...	...	...	...	...	...	+	...	...
71	.75	...	+	...	...	...	+	...	...	+	...	...	...
72	.75	...	...	...	...	...	...	...	...	...	...	...	...
73	.75	...	...	+	...	+	...	...	...	...	+	...	...
74	.75	...	...	...	...	...	...	...	...	...	...	+	...
75	.75	...	+	...	...	+	...	...	...	...	+	...	...
76	.75	...	...	...	...	...	...	...	...	...	...	+	...
77	.75	...	...	...	...	...	...	...	...	...	+	...	...

TABLE 37.—*Record of observations of indol, skatol, and hydrobilirubin in the feces*—Continued.

Subject I K.

Day of experiment.	Daily dose of saccharin.	Indol.				Skatol.				Hydrobilirubin.			
		Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.
	Gms.												
83	1.0	...	...	+	...	...	+	...	...	...	+	...	...
84	1.0	...	...	...	...	...	...	...	...	...	+	...	...
85	1.0	...	+	...	...	...	+	...	...	+	...	...	...
86	1.0	...	...	...	...	...	...	...	...	+	...	...	...
87	1.0	...	+	...	...	...	+	...	...	+	...	...	...
88	1.0	...	...	...	...	...	...	...	...	...	...	...	...
89	1.0	...	...	...	...	...	...	...	...	...	+	...	...
90	1.0	...	+	...	...	...	...	+	...	...	+	...	...
91	1.0	...	...	...	...	...	...	...	...	...	+	...	...
92	1.0	...	+	...	...	...	+	...	...	...	+	...	...
93	1.0	...	...	...	...	...	...	...	...	+	...	...	...
94	1.0	...	+	...	...	...	...	+	...	+	...	...	...
95	1.0	...	...	...	...	...	...	...	...	+	...	...	...
96	1.0	...	...	...	...	...	...	...	...	+	...	...	...
97	1.0	...	+	...	...	...	+	...	...	+	...	...	...
98	1.0	...	...	...	...	...	...	...	...	+	...	...	...
99	1.0	...	+	...	...	...	+	...	...	+	...	...	...
100	1.0	...	...	...	...	...	...	...	...	...	...	...	...
101	1.0	...	...	...	...	...	...	...	...	+	...	...	...
102	1.0	...	+	...	...	...	...	+	...	...	+	...	...
103	1.0	...	...	...	...	...	...	...	...	...	+	...	...
104	1.0	...	+	...	...	...	+	...	...	...	+	...	...
105	1.0	...	...	...	...	...	...	...	...	+	...	...	...
106	1.5	...	...	+	...	...	+	...	...	...	+	...	...
107	1.5	...	...	...	...	...	...	...	...	...	+	...	...
108	1.5	...	...	+	...	...	...	+	...	+	...	...	...
109	1.5	...	...	...	...	...	...	...	...	...	...	...	...
110	1.5	...	...	...	...	...	...	...	...	+	...	...	...
111	1.5	...	+	...	...	+	...	...	...	+	...	...	...
112	1.5	...	...	...	...	...	...	...	...	...	+	...	...

Subject II O.

Day of experiment.	Daily dose of saccharin.	Indol.				Skatol.				Hydrobilirubin.			
		Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.
	Gms.												
83	1.0	...	...	+	...	...	+	...	...	...	+	...	...
84	1.0	...	...	...	...	...	...	...	...	...	+	...	...
85	1.0	...	...	...	+	...	...	+	...	...	+	...	...
86	1.0	...	...	...	...	...	...	...	...	...	+	...	...
87	1.0	...	...	...	+	...	...	...	+	...	+	...	...
88	1.0	...	...	...	...	...	...	...	...	...	...	...	...
89	1.0	...	...	...	...	...	...	...	...	...	+	...	...
90	1.0	...	...	+	...	...	...	+	...	+	...	...	...
91	1.0	...	...	...	...	...	...	...	...	...	...	...	...
92	1.0	...	...	+	...	...	...	+	...	+	...	...	...
93	1.0	...	...	...	...	...	...	...	...	...	+	...	...
94	1.0	...	+	...	...	...	+	...	...	+	...	...	...
95	1.0	...	...	...	...	...	...	...	...	...	+	...	...
96	1.0	...	...	...	...	...	...	...	...	+	...	...	...
97	1.0	...	...	+	...	...	+	...	...	+	...	...	...
98	1.0	...	...	...	...	...	...	...	...	...	+	...	...
99	1.0	...	+	...	...	...	+	...	...	+	...	...	...
100	1.0	...	...	...	...	...	...	...	...	...	+	...	...
101	1.0	...	...	...	...	...	...	...	...	...	...	...	...
102	1.0	...	+	...	...	...	...	...	+	...	+	...	...
103	1.0	...	...	...	...	...	...	...	...	...	+	...	...
104	1.0	...	...	+	...	...	...	...	+	+	...	...	...
105	1.0	...	...	...	...	...	...	...	...	...	...	...	+
106	1.5	...	+	...	...	...	+	...	...	+	...	...	...
107	1.5	...	...	...	...	...	...	...	...	...	+	...	...
108	1.5	...	...	...	+	...	...	...	+	...	+	...	...
109	1.5	...	...	...	...	...	...	...	...	...	+	...	...
110	1.5	...	...	...	...	...	...	...	...	...	+	...	...
111	1.5	...	...	+	...	...	...	+	...	...	+	...	...
112	1.5	...	...	...	...	...	...	...	...	...	...	+	...
113	1.5	...	+	...	...	...	...	+	...	...	...	+	...
114	1.5	...	...	...	...	...	...	...	...	+	...	...	...
115	1.5	...	...	...	...	...	...	...	...	...	...	...	...
116	1.5	...	...	...	+	...	...	...	+	...	+	...	...

Subject III N.

Day of experiment.	Daily dose of saccharin.	Indol.				Skatol.				Hydrobilirubin.			
		Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.	Negative.	Slight.	Moderate.	Strong.
	Gms.												
78	1.0	...	+	...	...	...	+	...	...	...	+	...	...
79	1.0	...	...	...	...	...	...	...	...	...	+	...	...
80	1.0	...	...	+	...	...	+	...	...	...	+	...	...
81	1.0	...	...	...	...	...	...	...	...	+	...	...	...
82	1.0	...	+	...	...	+	...	...	...	...	+	...	...
83	1.0	...	...	...	...	...	...	...	...	...	+	...	...
84	1.0	...	...	...	...	...	...	...	...	+	...	...	...
85	1.0	...	...	+	...	...	+	...	...	+	...	...	...
86	1.0	...	...	...	...	...	...	...	...	...	+	...	...
87	1.0	...	...	+	...	...	+	...	...	...	+	...	...
88	1.0	...	...	...	...	...	...	...	...	...	+	...	...
89	1.0	...	+	...	...	...	+	...	...	...	+	...	...
90	1.0	...	...	...	...	...	...	...	...	+	...	...	...
91	1.0	...	...	...	...	...	...	...	...	+	...	...	...
92	1.0	...	+	...	...	...	+	...	...	+	...	...	...
93	1.0	...	...	...	...	...	...	...	...	...	+	...	...
94	1.0	...	+	...	...	...	+	...	...	...	...	+	...
95	1.0	...	...	...	...	...	...	...	...	...	+	...	...
96	1.0	...	...	+	...	...	+	...	...	...	+	...	...
97	1.0	...	...	...	...	...	...	...	...	...	...	...	...
98	1.0	...	...	...	...	...	...	...	...	...	+	...	...
99	1.5	...	...	+	...	...	+	...	...	+	...	...	...
100	1.5	...	...	...	...	...	...	...	...	+	...	...	...
101	1.5	...	+	...	...	...	+	...	...	...	+	...	...
102	1.5	...	...	...	...	...	...	...	...	...	+	...	...
103	1.5	...	...	+	...	...	+	...	...	...	...	+	...
104	1.5	...	...	...	...	...	...	...	...	...	+	...	...
105	1.5	...	...	...	...	...	...	...	...	...	+	...	...
106	1.5	...	...	+	...	...	...	+	...	...	+	...	...
107	1.5	...	...	...	...	...	...	...	...	...	+	...	...
108	1.5	...	...	+	...	...	...	+	...	...	+	...	...
109	1.5	...	...	...	...	...	...	...	...	...	...	+	...

113.	0	...	...	...	...	...	...	...	...	...	...	...	...
114.	0	...	...	+	...	...	...	+	...	...	+	...	...
115.	0	...	...	+	...	...	...	...	+	+	...	...	...
116.	0	...	...	...	...	...	...	...	...	...	+	...	...
117.	0	...	...	...	...	...	...	...	...	...	+	...	...
118.	0	...	+	...	...	...	+	...	...	...	+	...	...
119.	0	...	...	...	...	...	...	...	...	+	...	...	...
120.	0	...	+	...	...	...	...	+	...	+	...	...	...
121.	0	...	...	...	...	...	...	...	...	...	...	...	...
122.	0	...	...	...	...	...	...	...	...	+	...	...	...
123.	0	...	...	...	...	...	...	...	...	...	...	...	...
124.	0	...	...	...	...	...	...	...	...	...	+	...	...
125.	0	...	+	...	...	...	+	...	...	...	+	...	...
126.	0	...	...	...	...	...	...	...	...	...	+	...	...
127.	0	...	...	+	...	...	+	...	...	+	...	...	...
128.	0	...	...	...	...	...	...	...	...	+	...	...	...
129.	0	...	...	...	...	...	...	...	...	...	...	...	...

117.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
118.	1.5	...	...	...	+	...	...	...	+	...	+	...	...
119.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
120.	1.5	...	...	+	...	...	...	+	...	...	+	...	...
121.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
122.	1.5	...	+	...	...	...	...	+	...	...	+	...	...
123.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
124.	1.5	...	...	...	...	...	...	...	...	+	...	...	...
125.	1.5	...	+	...	...	...	+	...	...	...	+	...	...
126.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
127.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
128.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
129.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
130.	1.5	...	...	...	...	...	...	...	...	+	...	...	...
131.	1.5	...	...	...	...	...	...	...	...	...	...	...	+
132.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
133.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
134.	1.5	...	...	+	...	...	+	...	...	+	...	...	...
135.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
136.	1.5	...	...	+	...	...	...	+	...	...	...	+	...
137.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
138.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
139.	1.5	...	+	...	...	...	+	...	...	...	+	...	...
140.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
141.	1.5	...	...	+	...	...	...	...	+	...	+	...	...
142.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
143.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
144.	1.5	...	...	...	...	...	...	...	...	+	...	...	...
145.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
146.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
147.	1.5	...	...	...	...	...	...	...	...	+	...	...	...
148.	1.5	...	...	+	...	...	+	...	...	+	...	...	...
149.	1.5	...	...	...	...	...	...	...	...	+	...	...	...
150.	1.5	...	...	+	...	...	...	+	...	...	...	+	...
151.	0	...	...	...	...	...	...	...	...	+	...	...	...
152.	0	...	...	...	...	...	...	...	...	+	...	...	...
153.	0	...	...	+	...	...	+	...	...	+	...	...	...
154.	0	...	...	...	...	...	...	...	...	...	+	...	...
155.	0	...	...	+	...	...	...	+	...	+	...	...	...
156.	0	...	...	...	...	...	...	...	...	...	...	+	...
157.	0	...	...	+	...	...	...	+	...	...	...	...	+
158.	0	...	...	...	...	...	...	...	...	...	...	+	...
159.	0	...	...	...	...	...	...	...	...	...	+	...	...
160.	0	...	...	+	...	...	...	+	...	+	...	...	...
161.	0	...	...	...	...	...	...	...	...	+	...	...	...
162.	0	+	...	...	...	+	...	...	...	...	...	+	...
163.	0	...	...	...	...	...	...	...	...	...	...	+	...
164.	0	...	...	+	...	...	...	+	...	+	...	...	...

110.	1.5	...	...	+	...	...	+	...	...	...	+	...	...
111.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
112.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
113.	1.5	...	...	+	...	...	+	...	...	...	+	...	...
114.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
115.	1.5	...	+	...	...	+	...	...	...	+	...	...	...
116.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
117.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
118.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
119.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
120.	1.5	...	...	+	...	...	+	...	...	...	+	...	...
121.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
122.	1.5	...	+	...	...	...	+	...	...	...	+	...	...
123.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
124.	1.5	...	+	...	...	...	+	...	...	...	...	+	...
125.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
126.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
127.	1.5	...	...	+	...	+	...	...	...	+	...	...	...
128.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
129.	1.5	...	...	+	...	+	...	...	...	...	...	+	...
130.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
131.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
132.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
133.	1.5	...	...	...	...	...	...	...	...	...	...	+	...
134.	1.5	...	+	...	...	...	+	...	...	...	...	+	...
135.	1.5	...	...	...	...	...	...	...	...	...	...	...	...
136.	1.5	...	...	+	...	...	+	...	...	...	+	...	...
137.	1.5	...	...	...	...	...	...	...	...	+	...	...	...
138.	1.5	...	...	+	...	...	+	...	...	...	...	+	...
139.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
140.	1.5	...	...	...	...	...	...	...	...	...	+	...	...
141.	0	...	...	+	...	...	+	...	...	...	+	...	...
142.	0	...	...	...	...	...	...	...	...	...	+	...	...
143.	0	...	+	...	...	...	+	...	...	...	+	...	...
144.	0	...	...	...	...	...	...	...	...	...	+	...	...
145.	0	...	+	...	...	...	+	...	...	...	+	...	...
146.	0	...	...	...	...	...	...	...	...	...	...	...	...
147.	0	...	...	...	...	...	...	...	...	+	...	...	...
148.	0	...	+	...	...	...	+	...	...	+	...	...	...
149.	0	...	...	...	...	...	...	...	...	+	...	...	...
150.	0	...	+	...	...	...	+	...	...	...	+	...	...
151.	0	...	...	...	...	...	...	...	...	...	+	...	...
152.	0	...	...	+	...	...	+	...	...	...	+	...	...
153.	0	...	...	...	...	...	...	...	...	+	...	...	...
154.	0	...	...	+	...	...	+	...	...	+	...	...	...

Table 38.—*Average of observations of indol, skatol, and hydrobilirubin in the feces.*

Days of experiment.	Daily dose of saccharin.	Indol.						Skatol.						Hydrobilirubin.					
		Total number of observations.	Observations recorded as follows: Negative.	Slight.	Moderate.	Strong.	Average.	Total number of observations.	Observations recorded as follows: Negative.	Slight.	Moderate.	Strong.	Average.	Total number of observations.	Observations recorded as follows: Negative.	Slight.	Moderate.	Strong.	Average.
SUBJECT I K.																			
	Gms.																		
1–14	0	6		4	2		Slight	6		6			Slight	13		10	3		Slight.
15–35	.3	9		6	3		do	9		6	3		do	18	15	3			Negative.
36–56	.5	8		4	2	2	Moderate	7		4	2	1	Moderate	19	14	5			Do.
57–68	.75	5		1	4		do	5	1	1	2	1	do	10	7	3			Do.
69–82	0	5		4		1	Slight	5		3	2		Slight	9	3	6			Slight.
83–105	1.0	10		9	1		do	14		7	7		do	21	12	9			Negative.
106–112	1.5	3		1	2		Moderate	3	1	1	1		do	6	3	3			Negative to slight.
113–129	0	6		3	3		Slight to moderate.	6		3	2	1	Moderate	13	6	7			Slight.
SUBJECT II O.																			
1–14	0	7		3	4		Slight to moderate.	7		5	2		Slight	14	4	5	3	2	Slight.
15–35	.3	9		1	6	2	Moderate	9		1	5	3	Moderate	18	12	6			Negative.
36–56	.5	6			4	2	do	6		1	2	3	do	17	15	2			Do.
57–82	.75	11		2	6	3	do	11		2	5	4	do	23	8	15			Slight.
83–105	1.0	10		3	5	2	do	10		4	3	3	do	20	7	12		1	Do.
106–150	1.5	20		5	12	3	do	20		10	6	4	Slight	39	9	16	13	1	Do.
151–164	0	6	1		5		do	6	1	1	4		Slight to moderate.	14	7	2	4	1	Do.
SUBJECT III N.																			
1–14	0	6		3	3		Slight to moderate.	6		5		1	Slight	14	9	5			Negative.
15–35	.3	9		2	7		Moderate	9		9			do	21	7	14			Slight.
36–56	.5	9		1	6	2	do	9	2	7			do	21	9	10	2		Do.
57–77	.75	9		4	5		do	9	2	5	1	1	do	20	4	10	6		Do.
78–98	1.0	9		5	4		Slight	9	1	8			do	20	6	13	1		Do.
99–140	1.5	18		5	13		Moderate	18	3	13	2		do	40	5	24	11		Do.
141–154	0	7		4	3		Slight	7		7			do	13	5	8			Do.

INDOL AND SKATOL.

In the case of all three subjects there was a slight tendency to increase in indol formation during the period when saccharin was taken and in the case of subject I K and of subject II O there was an increase in the skatol in the feces during the earlier saccharin periods, which later became less marked although the dosage of saccharin was increased. All these changes in the amounts of indol and skatol in the feces are within normal limits. In the case of subject III N there was no increase in the skatol of the feces during the saccharin period.

HYDROBILIRUBIN.

An increase in hydrobilirubin has been found to indicate an increase in reduction processes in the intestine and to be associated with an increased activity of anaerobic putrefactive bacteria.

Hydrobilirubin was found to be absent, or present in only slight amount, in most of the specimens. Occasionally it gave a moderate or strong reaction. The saccharin had no obvious effect upon the intensity of the reaction for hydrobilirubin, as there were no distinct variations during the different periods of the experiment.

HYDROGEN SULPHIDE.

A determination of the amount of hydrogen sulphide in the feces was made regularly three times—or twice—weekly in the case of each of the subjects. As the presence of hydrogen sulphide in the feces is due to reduction processes in the intestine, its increase is usually associated with more marked putrefactive changes in the contents of the bowel. The variations in the hydrogen sulphide content in the feces of subject III N are within too narrow limits to have any significance. (Tables 76 and 39.) In the case of the other men there was a slight increase in hydrogen sulphide formation during the period when saccharin was taken, with a decrease after its use was discontinued. The ingestion of saccharin may slightly impair the intestinal digestion and lead to a slight increase in intestinal putrefaction, or it is conceivable that a small portion of the saccharin remaining in the feces is acted upon by intestinal bacteria, with the formation of hydrogen sulphide. However this may be, the amount of hydrogen sulphide in the feces of all of the subjects throughout the experiment was well within normal limits.

TABLE 39.—*Average amount of hydrogen sulphide in the feces per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Hydrogen sulphide in feces.	Days of experiment.	Daily dose of saccharin.	Hydrogen sulphide in feces.	Days of experiment.	Daily dose of saccharin.	Hydrogen sulphide in feces.
	Grams.	*Gram.*		*Grams.*	*Gram.*		*Grams.*	*Gram.*
1–7	0	0.0031	1–7	0	0.0065	1–7	0	0.0078
8–14	0	.0059	8–14	0	.0109	8–14	0	.0045
Av., 14 days		.0045	Av., 14 days		.0087	Av., 14 days		.0062
15–21	0.3	.0078	15–21	0.3	.0086	15–21	0.3	.0054
22–28	.3	.0046	22–28	.3	.0067	22–28	.3	.0041
29–35	.3	.0083	29–35	.3	.015	29–35	.3	.0043
Av., 21 days		.0069	Av., 21 days		.0101	Av., 21 days		.0046
36–42	.5	.015	36–42	.5	.016	36–42	.5	.0012
43–49	.5	.0098	43–49	.5	.018	43–49	.5	.0060
50–56	.5	.0076	50–56	.5	.0097	50–56	.5	.0023
Av., 21 days		.0108	Av., 21 days		.0146	Av., 21 days		.0032
57–63	.75	.008	57–63	.75	.015	57–63	.75	.0053
64–68	.75	.011	64–70	.75	.0085	64–70	.75	.0075
			71–77	.75	.019	71–77	.75	.0025
Av., 12 days		.0092	78–82	.75	.021			
69–75	0	.0099						
76–82	0	.0129						
Av., 14 days		.0114	Av., 26 days		.0155	Av., 21 days		.0051
83–84	1.0	....	83–91	1.0	.014	78–84	1.0	.0128
85–91	1.0	.015	92–98	1.0	.013	85–91	1.0	.0061
92–98	1.0	.0147	99–105	1.0	.020	92–98	1.0	.0064
99–105	1.0	....						
Av., 23 days		.0149	Av., 23 days		.0155	Av., 21 days		.0084
106–112	1.5	.0150	106–112	1.5	.015	99–105	1.5	.0051
			113–119	1.5	.013	106–112	1.5	.0073
			120–126	1.5	.029	113–119	1.5	.0066
			127–133	1.5	.0070	120–126	1.5	.0088
			134–140	1.5	.018	127–133	1.5	.0027
			141–147	1.5	.014	134–140	1.5	.0059
			148–150	1.5	.0097			
Av., 7 days		.0150	Av., 45 days		.0156	Av., 42 days		.0061
113–122	0	.0086	151–157	0	.018	141–147	0	.0095
123–129	0	.010	158–164	0	.0046	148–154	0	.0057
Av., 17 days		.0092	Av., 14 days		.0113	Av., 14 days		.0076

TOTAL NITROGEN.

The amount of nitrogen in the feces was determined at weekly intervals. The average daily amount fluctuated but slightly in the case of each subject during the different periods, as can be seen in Table 40. In the case of subject II O there was an absolute lessening of nitrogen in the feces during the saccharin periods as compared with the fore period. At the same time there was an absolute increase in the nitrogen of the food during all the saccharin periods excepting the first. This absolute decrease in the nitrogen of the feces does not occur in the cases of the other men, but in all the percentage of nitrogen absorbed was increased during the time of taking saccharin,

excepting in the case of subject III N during the time of highest saccharin dosage. This can be best studied in the table of average utilization of nitrogen. (Table 41.)

The effect of saccharin upon the nitrogen of the feces is not marked even in the relatively large dosage in which it was given. There was a slight lessening of the relative amount of nitrogen lost in the feces during the time that saccharin was taken.

TABLE 40.—*Average amount of total nitrogen in the feces per day.*

Subject I K.			Subject II O.			Subject III N.		
Days of experiment.	Daily dose of saccharin.	Total nitrogen in feces.	Days of experiment.	Daily dose of saccharin.	Total nitrogen in feces.	Days of experiment.	Daily dose of saccharin.	Total nitrogen in feces.
	Grams.	*Grams.*		*Grams.*	*Grams.*		*Grams.*	*Grams.*
1–7	0	1.91	1–7	0	1.69	1–7	0	1.96
8–14	0	1.34	8–14	0	1.86	8–14	0	1.90
Av., 14 days		1.62	Av., 14 days		1.77	Av., 14 days		1.93
15–21	0.3	1.32	15–21	0.3	1.70	15–21	0.3	2.03
22–28	.3	1.53	22–28	.3	1.74	22–28	.3	2.04
29–35	.3	.97	29–35	.3	1.50	29–35	.3	1.95
Av., 21 days		1.27	Av., 21 days		1.65	Av., 21 days		2.03
36–42	.5	1.35	36–42	.5	1.34	36–42	.5	2.35
43–49	.5	1.68	43–49	.5	1.38	43–49	.5	2.01
50–56	.5	1.97	50–56	.5	1.47	50–56	.5	1.72
Av., 21 days		1.67	Av., 21 days		1.40	Av., 21 days		2.00
57–63	.75	1.85	57–63	.75	1.82	57–63	.75	2.16
64–68	.75	1.54	64–70	.75	1.43	64–70	.75	2.25
			71–77	.75	1.61	71–77	.75	1.76
Av., 12 days		1.72	78–82	.75	2.02			
69–75	0	1.36						
76–78	0	1.77						
81–82	0	.97						
Av., 12 days		1.40	Av., 26 days		1.70	Av., 21 days		2.06
83–84	1.0	1.49	83–91	1.0	1.41	78–84	1.0	2.27
85–91	1.0	1.21	92–98	1.0	1.65	85–91	1.0	2.00
92–98	1.0	1.67	99–105	1.0	1.62	92–98	1.0	2.07
99–105	1.0	1.05						
Av., 23 days		1.33	Av., 23 days		1.55	Av., 21 days		2.11
106–112	1.5	1.41	106–112	1.5	1.48	99–105	1.5	2.07
			113–119	1.5	1.65	106–112	1.5	1.92
			120–126	1.5	1.48	113–119	1.5	2.06
			127–133	1.5	1.61	120–126	1.5	1.97
			134–140	1.5	1.79	127–133	1.5	1.54
			141–147	1.5	1.50	134–140	1.5	2.13
			148–150	1.5	2.12			
Av., 7 days		1.41	Av., 45 days		1.62	Av., 42 days		1.95
113–122	0	1.08	151–157	0	1.59	141–147	0	2.17
123–129	0	1.43	158–164	0	1.78	148–154	0	1.83
Av., 17 days		1.22	Av., 14 days		1.68	Av., 14 days		2.00

UTILIZATION OF NITROGEN.

From Table 41 it is seen that the utilization of nitrogen averaged slightly higher during the representative weeks of the saccharin periods than during the weeks when no saccharin was taken, with

the exception of subject III N, in which case there was no change. Subject I K utilized 90.5 per cent of ingested nitrogen during the two weeks of the fore and after periods when the observations were made. During the intervening representative weeks of the saccharin periods his utilization averaged 91.4 per cent. In the case of subject II O, 89.5 per cent was utilized during the nonsaccharin periods and 90.5 per cent during the saccharin periods, and in the case of subject III N the average utilization remained 89 per cent throughout.

In each case the daily average intake of nitrogen was somewhat greater during the saccharin periods than during the nonsaccharin periods, corresponding to a slight increase of body weight. (See Table 3.)

TABLE 41.—*Average utilization of nitrogen per day.*

SUBJECT I K.

Days of experiment.	Daily dose of saccharin.	Nitrogen.			
		Intake in food.	Output in feces.	Difference.	Utilization.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Per cent.*
8–14	0	13.83	1.34	12.49	90
29–35	0.3	14.32	.97	13.35	93
50–56	.5	17.45	1.97	15.48	88.5
85–91	1.0	15.07	1.21	13.86	92
106–112	1.5	18.07	1.41	16.66	92
123–129	0	16.34	1.43	14.91	91
Fore and after periods	0	15.09	1.39	13.70	90.5
Intervening saccharin periods	0.3–1.5	16.23	1.39	14.84	91.4

SUBJECT II O.

Days of experiment.	Daily dose of saccharin.	Intake in food.	Output in feces.	Difference.	Utilization.
8–14	0	17.15	1.86	15.29	89
29–35	0.3	16.73	1.32	15.41	88
50–56	.5	17.23	1.47	15.76	91
71–77	.75	19.07	1.62	17.45	91
92–98	1.0	18.56	1.65	16.91	91
113–119	1.5	19.15	1.65	17.50	91
134–140	1.5	19.54	1.79	17.75	91
158–164	0	18.22	1.78	16.44	90
Fore and after periods	0	17.69	1.82	15.87	89.5
Intervening saccharin periods	0.3–1.5	18.38	1.58	16.80	90.5

SUBJECT III N.

Days of experiment.	Daily dose of saccharin.	Intake in food.	Output in feces.	Difference.	Utilization.
8–14	0	16.38	1.89	14.49	88
29–35	0.3	17.54	1.95	15.59	89
50–56	.5	20.50	1.75	18.75	91
71–77	.75	18.88	1.74	17.14	91
92–98	1.0	18.89	2.07	16.82	89
113–119	1.5	16.06	2.06	14.00	87
134–140	1.5	16.91	2.13	14.78	87
148–154	0	18.51	1.83	16.68	90
Fore and after periods	0	17.45	1.86	15.59	89
Intervening saccharin periods	0.3–1.5	18.13	1.95	16.18	89

NITROGEN BALANCE.

A comparison of the nitrogen ingested with that excreted in the urine and feces was made for representative weeks of each of the periods of the experiment. The results are given in Table 42. The balance of nitrogen ingested and excreted fluctuated irregularly in the cases of all the subjects. At times there was a slight excess of nitrogen excreted over that ingested, but averaging all of the saccharin periods together there was in the case of each man a slight excess of nitrogen of the food over that of the urine and feces. This corresponds with the increase in body weight during the saccharin period. The fluctuations in the nitrogen balance are not sufficiently marked to be of significance. They indicate that the use of saccharin did not lead to a loss of body nitrogen.

TABLE 42.—*Nitrogen balance, daily average.*

SUBJECT I K.

Days of experiment.	Daily dose of saccharin.	Nitrogen in—				
		Food.	Urine.	Feces.	Urine and feces.	Balance.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Grams.*	*Grams.*
8–14	0	13.83	12.54	1.34	13.88	−0.03
29–35	0.3	14.32	13.68	.97	14.65	− .33
50–56	.5	17.45	13.82	1.97	15.79	+1.66
85–91	1.0	15.07	13.40	1.21	14.61	+ .46
106–112	1.5	18.07	14.19	1.41	15.60	+2.47
123–129	0	16.34	13.85	1.43	14.98	+1.36

SUBJECT II O.

8–14	0	17.15	13.61	1.86	15.47	+1.68
29–35	0.3	16.73	15.75	1.32	17.07	− .34
50–56	.5	17.23	15.46	1.47	16.93	+ .28
71–77	.75	19.07	15.96	1.62	17.58	+1.49
92–98	1.0	18.56	17.23	1.65	18.88	− .32
113–119	1.5	19.15	17.85	1.65	19.50	− .35
134–140	1.5	19.54	15.86	1.79	17.65	+1.89
158–164	0	18.22	16.31	1.78	18.09	+ .13

SUBJECT III N.

8–14	0	16.38	12.51	1.89	14.40	+1.98
29–35	0.3	17.54	14.79	1.95	16.74	+ .80
50–56	.5	20.50	14.88	1.75	16.63	+3.87
71–77	.75	18.88	16.43	1.74	18.17	+ .71
92–98	1.0	18.89	13.49	2.07	15.57	+3.32
113–119	1.5	16.06	14.63	2.06	16.69	− .63
134–140	1.5	16.91	14.92	2.13	17.05	− .14
148–154	0	18.51	14.17	1.83	16.00	+2.51

CLINICAL AND MICROSCOPICAL EXAMINATION.

THE STUDY OF THE GASTRIC CONTENTS.

The subjects of the experiment were given a test meal at intervals of about two weeks. The test meal consisted of about 50 grams of bread without butter and tea without milk or sugar. It was eaten at 8 o'clock in the morning and was removed with a stomach tube about an hour later. The exact interval and the results of the analyses of the gastric contents are given in Table 43. The recovered material was measured and filtered. The filtrate was tested with decinormal sodium hydroxide solution for free hydrochloric acid by the Mintz test and also by the amido-azobenzol test and for total acidity with phenolphthalein. The table gives the amounts of free hydrochloric acid and total acidity per 100 c. c. of the filtered gastric contents expressed as cubic centimeters of tenth normal acid and grams, the grams of total acidity being in terms of hydrochloric acid. Subject I K had no free acid and a low total acidity in the first examination. This was his first experience with the stomach tube, and this fact seems an adequate explanation of the low acidity. The subsequent analyses showed no variations beyond the limits of normal individuals. On one occasion, the ninety-sixth day of the experiment, very little stomach content could be removed, but this gave a strong test for free acid. Subject II O showed a tendency toward increasing acidity during the first three months of the experiment. After this time the acidity fluctuated somewhat, and while he was taking the larger doses of saccharin both the lowest and highest amounts of free hydrochloric acid and of total acid were found. In the after period a fairly high acidity was found.

The higher figures in this series of analyses were a little above the normal average for total acids as well as for free hydrochloric acid. Subject III N showed a low acidity throughout the whole experiment. His throat was very sensitive, and while the tube was in the stomach there was always a very free secretion of mucus and saliva, accompanied by violent retching and sometimes by the extravasation of a little blood. The low acidity was doubtless largely due to this excess of alkaline saliva. His digestion was normal, and the microscopic examination of the stomach contents showed nothing unusual besides the mucus and blood. There was no consistent change in the gastric contents that could be attributed to the saccharin.

A study of the results of the analyses of the gastric contents in the three subjects justifies the conclusion that in these experiments saccharin produced no constant change on the secretions or motor functions of the stomach.

TABLE 43.—*Gastric examination.*

M=Mintz test; B=amido-azobenzol test.]

SUBJECT I K.

Day of the experiment.	Daily dose of saccharin.	Time after test meal.	Amount recovered.	Free hydrochloric acid per 100 c. c. of filtered gastric contents.		Total acidity per 100 c. c. of filtered gastric contents.	
				In terms of tenth normal acid.	In terms of hydrochloric acid.	In terms of tenth normal acid.	In terms of hydrochloric acid.
	Grams.	*Minutes.*	*c. c.*	*c. c.*	*Gram.*	*c. c.*	*Gram.*
13	0	75	60	0	0	20	0.073
19	0.3	60	60	M. 46 B. 51	0.168 .186	80	.293
32	.3	60	60	M. 28 B. 30	.102 .11	56	.205
47	.5	65	90	M. 51 B. 51	.186 .186	70	.255
62	.75	65	70	M. 64 B. 54	.235 .196	91	.333
82	0	65	50	M. 30 B. 40	.11 .146	62	.226
96	1.0	60	10	Strong.	....	....	....
113	1.5	65	50	M. 36 B. 43	.132 .156	67	.245
130	0	65	60	M. 31 B. 41	.118 .15	67	.245

SUBJECT II O.

12	0	75	180	M. 27	0.099	48	0.175
34	0.3	60	90	M. 20 B. 25	.073 .094	48	.175
60	.75	65	175	M. 32 B. 38	.116 .138	57	.21
81	.75	60	175	M. 55 B. 63	.2 .23	84	.305
102	1.0	60	50	M. 8 B. 12	.029 .044	29	.106
120	1.5	70	50	M. 58 B. 64	.21 .23	88	.32
144	1.5	60	80	M. 36 B. 41	.131 .15	61	.223
165	0	65	50	M. 54 B. 58	.198 .21	84	.305

SUBJECT III N.

2	0	70	50	M. 4	0.0146	28	0.102
7	0	60	105	M. 9 B. 12	.033 .044	38	.139
21	0.3	65	60	M. 0 B. 0	....	18	.066
36	.5	65	70	M. 0 B. 0	....	11	.04
49	.5	65	70	M. 9 B. 18	.033 .066	42	.154
63	.75	65	50	0	....	19	.069
78	1.0	65	50	M. 2 B. 12	.007 .044	40	.148
91	1.0	65	5	B. +	....	....	....
106	1.5	65	10	B. 21	.077	51	.186
120	1.5	50	40	M. 0 B. 6	.... .022	32	.118
133	1.5	50	30	M. 8 B. 16	.029 .058	52	.19
155	0	60	50	M. 0 B. 7	.... .025	28	.102

THE EXAMINATION OF THE BLOOD.

The blood of every subject was examined at intervals of about two weeks, and the results of the examinations are given in detail in Table 44.

This study included the estimation of the hemoglobin, the enumeration of the red cells and of the leucocytes, and a differential count of the white cells. The blood was taken from a finger at about the same hour of the day in all of the examinations. The hemoglobin was estimated with a von Fleischl hemometer. The red cells were counted in a Thoma counting chamber after a dilution with Hayem's solution. The Tuerck counter was used for the white cells. For the differential, 500 cells were counted, except on a few occasions, which are indicated in the table.

The variation in the blood of subjects II O and III N was not more than is found in healthy individuals, with the exception of one leucocyte count of subject II O on the one hundred and twentieth day of the experiment. At this time he was suffering from an acute catarrhal cold of the nose, throat, and bronchi, and his white cells were increased in number to 12,370 in a cubic millimeter. The percentage of the polynuclears also was slightly higher at this time. The blood of subject I K throughout the experiment gave a slightly lower average hemoglobin percentage and lower red-cell count. The differential count of this subject's leucocytes revealed a low percentage of polynuclear neutrophiles and a larger percentage of lymphocytes. This peculiarity, however, persisted throughout the experiment and was not influenced by the saccharin. The conclusion to be drawn from the study of the blood of these subjects is, therefore, that saccharin in this series of experiments had no influence on the blood in respect to its hemoglobin content, the number of red cells, the number of leucocytes, or the differential count of the white cells.

TABLE 44.—*Blood examination.*

SUBJECT I K.

Day of the experiment.	Daily dose of saccharin.	Hemoglobin, v. Fleischl.	Red cells.	Leucocytes.	Polynuclears.	Small lymphocytes.	Large lymphocytes, mononuclears and transitionals.	Eosinophiles.	Basophiles.	Cells counted.
	Gms.									
13	0	93	4,248,000	6,200	51.0	36.4	11.8	0.8	0.2	500
32	0.3	87	3,916,800	6,480	46.6	40.2	11.9	.1	.3	[1] 1,100
47	.5	100	5,801,000	6,500	45.5	41.4	10.7	2.1	.3	532
62	.75	90	4,772,000	6,050	42.4	43.7	11.4	2.4	.1	1,000
75	0	97	4,898,000	5,520	48.0	40.4	9.4	1.8	.4	500
89	1.0	95	....	8,060	44.2	44.6	9.2	1.8	.2	500
96	1.0	....	4,996,000	....	....	....	....	....	....	....
113	1.5	95	5,028,000	7,844	33.6	43.5	21.1	1.8	....	334
130	0	90	4,224,000	6,578	43.4	43.4	9.6	2.8	.8	500

[1] Two nucleated red cells (normoblasts).

TABLE 44.—*Blood examination*—Continued.

SUBJECT II O.

Day of the experiment.	Daily dose of saccharin.	Hemoglobin, v. Fleischl.	Red cells.	Leucocytes.	Polynuclears.	Small lymphocytes.	Large lymphocytes, mononuclears and transitionals.	Eosinophiles.	Basophiles.	Cells counted.
	Gms.									
12	0	97	4,472,000	5,800	62.8	27.8	7.8	1.4	0.2	500
34	0.3	95	5,148,000	7,965	68.0	23.4	7.4	1.2	0	500
46	.5	105	....	....	....	....	....	....	....	....
60	.75	97	5,676,000	8,120	64.8	23.2	10.2	1.8	.40	500
74	.75	110	4,896,000	8,040	62.8	27.0	8.0	1.8	.4	500
88	1.0	102	4,648,000	7,933	62.8	27.2	8.4	1.6	0	500
102	1.0	....	4,600,000	7,660	61.8	23.6	13.2	1.0	.4	500
120	1.5	105	5,524,000	[1] 12,370	76.4	17.2	6.0	.4	0	500
144	1.5	105	5,392,000	8,890	68.0	20.8	9.6	1.2	.4	500
165	0	105	5,492,000	10,600	62.33	28.0	7.0	2.0	.67	300

SUBJECT III N.

Day of the experiment.	Daily dose of saccharin.	Hemoglobin, v. Fleischl.	Red cells.	Leucocytes.	Polynuclears.	Small lymphocytes.	Large lymphocytes, mononuclears and transitionals.	Eosinophiles.	Basophiles.	Cells counted.
2	0	95	4,560,000	5,040	62.2	23.4	11.2	2.8	0.4	500
20	0.3	100	5,174,000	5,130	67.4	22.0	8.6	1.8	.2	500
36	.5	95	4,456,000	6,200	64.8	20.8	11.0	3.0	.4	500
49	.5	97	4,530,000	8,400	62.2	23.8	10.8	2.8	.4	500
63	.75	100	5,282,000	4,960	59.8	23.8	11.9	4.2	.3	335
78	.75	100	5,114,000	7,288	67.2	17.4	10.8	4.6	.0	500
91	1.0	....	5,756,000	10,900	68.2	13.4	14.2	3.8	.4	500
105	1.5	100	5,312,000	8,420	55.4	30.2	10.0	3.6	.8	500
120	1.5	100	5,776,000	6,620	63.8	22.4	10.6	2.8	.4	500
133	1.5	100	5,392,000	5,110	61.2	25.4	10.4	2.0	1.0	500
155	0	100	5,096,000	9,910	60.2	27.6	9.6	2.0	.6	500

[1] Acute rhinitis, pharyngitis, bronchitis.

THE FECES.

Smears were made from the fresh feces every day and stained by Gram's method. Twice a week some of the feces was mixed with about ten times its weight of sterilized 0.85 per cent sodium chloride solution and four drops of this fecal suspension were used to inoculate plain broth and dextrose broth in fermentation tubes. After the tubes had been incubated for about 24 hours at 37° C., smears were made from the sediments in the tubes and stained by Gram's method. The height of the column of gas in the closed arm of the dextrose broth tube was measured and expressed in percentages of the height of the closed arm of the tube. In the first few examinations the height of the column of gas was measured in millimeters and subsequently calculated to percentages of the length of the average tube. This method, although slightly less accurate than that used in the later determinations, gave errors that are insignificant, inasmuch as all of the tubes used were of about the same length. The plain broth tube was tested for mercaptan in the following manner: By means of a suction pump air was drawn for five minutes through the liquids in a system of three bottles connected in series. The first contained a solution of potassium permanganate in water. The air was then passed through

calcium chloride and into the second bottle, which contained the broth culture of the mixed fecal suspension, to which a few drops of liquid petrolatum had been added to lessen frothing, and finally through a few cubic centimeters of concentrated sulphuric acid containing a little isatin. This liquid is changed in color by mercaptan to green. The depth of the resulting green color was taken as a measure of the amount of mercaptan in the culture.

The amounts of gas in the dextrose broth tubes and of mercaptan in the plain broth tubes are given in Table 45.

The gas formation in the normal individual fluctuates within fairly wide limits and such fluctuations may be seen in the results of these experiments. In the fourth column of the table under each subject will be found the averages of the gas formation for every period during which the daily dose of saccharin was unchanged. These averages show that during the period of maximal doses of saccharin subject I K had the greatest gas formation, subject II O had the average amount of gas, and subject III N the smallest gas formation. In subject I K the averages for all the different periods are fairly constant. With subject II O the first period shows the most gas, the next four periods give identical figures, and the last period (the after period) shows the lowest average. In the case of subject III N the fluctuation in the amount of gas is somewhat more marked.

A comparison of the figures for the same individual in the different periods and for corresponding periods in the different individuals warrants the conclusion that in these experiments saccharin had no characteristic effect on the production of gas in dextrose broth fermentation tubes inoculated with the mixed fecal flora.

TABLE 45.—*Feces examination.*

Subject I K.					Subject II O.					Subject III N.				
Day of the experiment.	Daily dose of saccharin.	Gas.	Average.	Mercaptan.	Day of the experiment.	Daily dose of saccharin.	Gas.	Average.	Mercaptan.	Day of the experiment.	Daily dose of saccharin.	Gas.	Average.	Mercaptan.
	Gms.	*P. ct.*				*Gms.*	*P. ct.*				*Gms.*	*P. ct.*		
15...	0.3	40		Moderate.	15...	0.3	28		Strong.	2...	0	43		Strong.
21...	.3	25		None.	21...	.3	44		Moderate.	9...	0	36	33	Moderate.
24...	.3	36	26	Do.	24...	.3	16	27	Very faint.	12...	0	21		Faint.
28...	.3	28		Do.	28...	.3	20		Faint.	16...	0.3	18		Moderate.
31...	.3	14		Very faint.	31...	.3	29		Do.	19...	.3	26		Very faint.
35...	.3	15		Moderate.	35...	.3	27		Very faint.	23...	.3	20	19	Do.
38...	.5	20		Faint.	38...	.5	18		Moderate.	26...	3	21		Faint.
42...	.5	15		Do.	42...	.5	15		Very faint.	30...	.3	10		Very faint.
46...	.5	21	20	Moderate.	46...	.5	20	20	Moderate.	34...	.3	21		Moderate.
49...	.5	12		Faint.	49...	.5	22		Very faint.	37...	.5	20		None.
52...	.5	22		Do.	52...	.5	25		Faint.	40...	.5	15		Do.
56...	.5	30		Very faint.	56...	.5	22		None.	44...	.5	25	26	Do.
59...	.75	24		Faint.	59...	.75	15		Faint.	47...	5	40		Faint.
63...	.75	5	20	Moderate.	63...	.75	22		Very faint.	51...	.5	28		Moderate.
66...	.75	30		Do.	66...	.75	20		Moderate.	54...	.5	27		Do.
70...	0	30		Faint.	70...	.75	15	20	None.	58...	.75	17		Faint.
73...	0	20	25	Moderate.	73...	.75	25		Faint.	61...	.75	12		Do.
77...	0	27		None.	77...	.75	20		Strong.	65...	.75	30	17	Strong.
80...	0	22		Faint.	80...	.75	22		None.	68...	.75	10		Moderate
84...	1.0	20		Moderate.	84...	1.0	20		Moderate.	72...	.75	15		Do.
87...	1.0	20	24	Faint.	87...	1.0	15		Do.	75...	.75	15		Faint.
91...	1.0	25			91...	1.0	30	20		79...	1.0	18		
94...	1.0	30		Very faint.	94...	1.0	25		Very faint.	82...	1.0	18		Very faint.
106...	1.5	38		Strong.	101...	1.0	10		Moderate.	89...	1.0	10	16	Moderate.
108...	1.5	20	30	None.	106...	1.5	25		Do.	94...	1.0	12		Strong.
112...	1.5	32		Faint.	108...	1.5	30		Very faint.	96...	1.0	20		None.
115...	0	17		Moderate.	112...	1.5	23		None.	100...	1 5	20		Do.
119...	0	25		Do.	115...	1 5	10		Moderate.	103...	1.5	7		Faint.
122...	0	30	25	Faint.	119...	1.5	22		None.	107...	1.5	15		None.
126...	0	28		Moderate.	122...	1.5	20		Moderate.	110...	1.5	20		Very faint.
129...	0	20		Do.	126...	1.5	18	20	None.	114...	1.5	17		Do.
					129...	1.5	12		Do.	117...	1.5	15	13	Do.
					133...	1.5	10		Faint.	121...	1.5	15		None.
					136...	1.5	18		Moderate.	124...	1.5	15		Very faint.
					140...	1.5	30		None.	128...	1.5	5		Do.
					143...	1.5	30		Very faint.	131...	1.5	7		Moderate.
					148...	1.5	20		Do.	136...	1.5	7		Very faint.
					150...	1.5	12		Strong.	138...	1.5	15		Do.
					154...	0	30		Moderate.	142...	0	10		Do.
					157...	0	15	16	Very faint.	145...	0	10	16	Do.
					161...	0	10		None.	149...	0	20		None.
					164...	0	10		Do.	152...	0	25		Very faint.

THE INFLUENCE OF SACCHARIN ON TWO APPROXIMATELY NORMAL SUBJECTS.

The study of the effect of saccharin on two approximately normal subjects, H. E. D. and J. W. D., was made under the supervision of J. S. Thacher, M. D. The subjects were under observation from March 2 to April 30. Up to March 14 the men took no saccharin. Then for two weeks, to March 28, the men took each 1 gram of saccharin daily. From March 28 through April 30—a period of 34 days—the men took 1.5 grams of saccharin each daily. The saccharin was taken at meal time with certain foods, as cereals and in tea and coffee. It was taken in the form of the sodium salt prepared by dissolving 1 part of saccharin in 6 parts of water containing 0.5 part of sodium bicarbonate. Examinations of the feces, urine, blood, and gastric contents of the men were made at fairly regular

intervals; the results of the various examinations are presented in the accompanying tables.

The subject H. E. D. was a man 26 years of age, weighing 81.5 kilos, having lost 3 kilos in two months. His weight fluctuated more or less throughout the course of the experiment. On March 12 it was 82.5 kilos; on March 21 it was again 81.5 kilos. On April 16, about the middle of the high saccharin period, he weighed 83.2 kilos, and on May 1 his weight was 80.1 kilos. This last weight was taken at 9.30 o'clock in the evening, after the subject had perspired freely and before he had eaten, and his clothing was lighter in weight than that previously worn. His taking of saccharin had apparently but little effect upon his body weight.

The subject developed no symptoms during the experiment. His pulse fluctuated within normal limits and was of average tension. His appetite remained good and he slept well. He thought the experiment had made no change at all in his condition.

Subject J. W. D. was a man 21 years of age. His weight on March 22 was 83.2 kilos, he having gained much in weight during the past year, but his weight remained fairly constant during the experiment. On April 16 he weighed 83 kilos and on May 1 his weight was 82.5 kilos. The fluctuations in body weight were so slight as to have no significance.

The subject developed no particular symptoms during the time he was under observation. He had some acne from the outset. On March 28 he developed a "cold," with headache, pain in the back, weakness in the legs, constipation, and sore throat. His appetite, however, remained good and he slept well. It seemed improbable that saccharin was a factor in this disturbance.

On April 16 the subject still had a little cold. He had a slight pain in the stomach on the 14th, increasing somewhat on the 15th, accompanied by some diarrhea. He took citrate of magnesia on the 15th and reported feeling better on the following day. This digestive disturbance was not accompanied by nausea or headache. His appetite was good and he slept well. To what extent, if any, this digestive disturbance was due to the saccharin it is difficult to say. It seems hardly probable, however, that the saccharin was to any great extent the cause of the disturbance, since the patient recovered quickly, though he continued taking 1.5 grams of saccharin daily for two weeks. At the end of this time, May 1, the close of the experiment, the subject reported that he was "feeling fine," which was borne out by his general appearance. He reported having slept well and having had no headaches. His older brother said at the close of the experiment that he had never known him to be so well, nor his skin so clear, and remarked that other members of the family made the same observation.

URINE.

By inspection of the results in Table 46 it may be observed that in regard to the urine the only noteworthy abnormalities observed relate in subject H. E. D. to the presence of a slight chronic prostatitis, which was the occasion of slight albuminuria. Apparently the taking of saccharin exerted no influence upon the composition of the urine in either of the cases reported.

TABLE 46.—*Urine examination.*

SUBJECT H. E. D.

Date.	Daily dose of saccharin.	Physical.				Chemical.				Microscopical.						
		Color.	Appearance.	Sediment.	Specific gravity.	Reaction.	Albumin.	Sugar.	Indican.	Epithelium.	Red blood cells.	Leucocytes.	Cylindroids.	Bacteria.	Mucus.	Crystals.
1910.	*Gms.*															
Mar. 2	0	Dark amber.	Clear, mucous cloud.	None	1.025	Acid.	Trace	0	Large amount.	Few squamous.	None.	Few	0	None	Small amount.	Calcium oxalates.
4	0	Amber	do	do	1.020	do	do	0	Small amount.	Occasional squamous.	Few	Occasional	0	do	do	
6	0	Dark amber.	do	White flocculent.	1.025	do	do	0	Large amount.	Few squamous.	do	Few pus	0	do	do	Masses calcium oxalates.
23	1.0	Light amber.	do	do	1.021	do	Very faint trace.	0	Small amount.	Occasional squamous.	None.	Occasional	0	do	do	
25	1.0	Yellow	Cloudy	None	1.019	do	Marked trace	0	Medium amount.	Moderate number renal and squamous.	Few	Few	0	do	do	Moderate number spermatozoa.
27	1.0	Dark amber.	Clear	do	1.025	do	Heavy trace	0	Trace	Few squamous.	do	Occasional	0	do	do	
Apr. 5	1.5	Amber	Clear, mucous cloud.	do	1.021	do	do	0	do	Occasional squamous.	None.	do	0	do	do	
7	1.5	Dark amber.	do	do	1.024	do	Trace	0	Small amount.	do	do	do	0	do	do	
9	1.5	do	do	do	1.022	do	Faint trace	0	do	do	do	do	0	Few bacilli.	do	
19	1.5	do	do	do	1.025	do	Trace	0	Trace	do	Few	do	0	None	do	Large number spermatozoa.
21	1.5	Amber	do	do	1.017	do	do	0	do	do	do	do	0	Few bacilli.	do	Few spermatozoa; few calcium oxalates.
23	1.5	do	do	do	1.017	do	do	0	do	do	do	do	0	None	do	Occasional spermatozoa.
29	1.5	Dark amber.	do	do	1.031	do	do	0	do	do	None.	do	0	Few bacilli.	do	Calcium oxalates.

SUBJECT J. W. D.

Mar. 3..	0	Amber..	Clear........	Heavy flocculent.	1.031	Acid.	None.........	0	Small amount.	Few squamous.	None.	Few......	0	None...	Large amount.	
5..	0	...do....	Turbid......	Medium flocculent.	1.024	..do..	.....do........	0	Large amount.	.....do.........	...do..	.....do....	0	...do...	Small amount.	
7..	0	...do....	.....do......	Heavy pink, 2 per cent.	1.031	..do...	.....do........	0	...do......	... .do.........	...do..	.....do....	0	...do...	...do....	
22..	1.0	...do....	Clear........	Heavy white.	1.026	..do...	.....do........	0	...do......	Occasional squamous.	...do..	Occasional	0	...do...	...do....	Amorphous urates.
24 .	1.0	...do....	.....do......	None........	1.028	..do...	Very faint trace.	0	Small amount.	Few squamous.	...do..	Few......	0	...do...	...do....	
26..	1.0	...do....	.....do......	.....do.......	1.019	..do...	None.........	0	...do......	Occasional squamous.	...do..	Occasional	0	...do...	...do....	
Apr. 4..	1.5	...do....	.....do......	Slight flocculent.	1.026	..do...	None (phosphates).	0	Trace.....	.....do.........	...do..	.....do....	0	...do...	...do....	
8..	1.5	...do....	Clear, mucous cloud.	None........	1.022	..do...	None.........	0	Small amount.	.....do.........	...do..	.....do....	0	...do...	...do....	Few calcium oxalate crystals.
10..	1.5	Dark amber.	.....do......	.....do.......	1.025	..do...	.....do........	0	...do......	.....do.........	...do..	.....do....	0	...do...	...do....	
18..	1.5	Amber..	.....do......	.....do.......	1.028	..do...	.....do........	0	Heavy trace.	.....do.........	...do..	.....do....	0	...do...	...do....	
20..	1.5	...do....	.....do......	.....do.......	1.023	..do...	Faint trace....	0	Trace.....	.....do.........	Few..	.....do....	0	....	...do....	Spermatozoa; calcium oxalates.
22..	1.5	Dark amber.	.....do......	.....do.......	1.030	..do...	None.........	0	Small amount.	.....do.........	None.	.....do....	0	....	...do....	
30..	1.5	Amber..	.....do......	.....do.......	1.026	..do...	.....do........	0	Trace.....	.....do.........	...do..	.....do....	0	None...	...do....	

FECES.

The variations observed in the consistence, form, color, and reaction of the feces were, throughout, within normal limits. Nevertheless there was observed a tendency to an increase in the average acidity of the feces in the case of each subject. This was attributed to the presence of saccharin itself, or as an indirect effect of its administration.

Table 47.—*Feces examination.*

SUBJECT H. E. D.

Date	Daily dose of saccharin.	Consistence.	Color.	Reaction.	Blood.	Mucus.
1910.	*Grams.*					
Mar. 2	0	Soft formed	Normal	Alkaline	0	0
4	0	Normal formed	do	do	0	0
6	0	do	do	do	0	0
23	1.0	do	do	do	0	0
25	1.0	Semisolid formed	do	Acid	0	0
27	1.0	Soft mass	do	do	0	0
Apr. 5	1.5	Normal formed	do	do	0	0
7	1.5	Patient constipated	do			
9	1.5	Hard formed	do	Faintly acid	0	0
19	1.5	Normal formed	do	Strongly acid	0	0
21	1.5	do	do	Acid	0	0
23	1.5	do	do	Strongly acid	0	0
29	1.5	Pasty formed	do	Acid	0	0

SUBJECT J. W. D.

Date	Daily dose of saccharin.	Consistence.	Color.	Reaction.	Blood.	Mucus.
Mar. 3	0	Soft undigested food	Normal	Acid	0	0
5	0	Normal formed	do	Alkaline	0	0
7	0	Soft undigested, semiformed	Light brown	Faintly acid	0	0
22	1.0	Normal formed	Normal	Alkaline	0	0
24	1.0	Pasty	Brown	Acid	0	0
26	1.0	Pasty formed	Normal	Strongly acid	0	0
Apr. 4	1.5	Normal formed	do	Acid	0	0
8	1.5	do	do	do	0	0
10	1.5	Hard formed	do	do	0	0
18	1.5	Hard pieces, constipated	do	do	0	0
20	1.5	Normal formed	do	Faintly acid	0	0
22	1.5	do	do	Acid	0	0
30	1.5	Soft formed	do	do	0	0

BLOOD.

The examination of the blood included the estimation of the hemoglobin and the number of red blood cells and white blood cells per cubic millimeter. None of these revealed any abnormalities.

TABLE 48.—*Blood examination.*

SUBJECT H. E. D.

Date.	Daily dose of saccharin.	Red cells.		White cells.		Hemoglobin.	
		Right.	Left.	Right.	Left.	Right.	Left.
1910.	*Grams.*	*No. per c. mm.*	*No. per c. mm.*	*No. per c. mm.*	*No. per c. mm.*	*Per cent.*	*Per cent.*
Mar. 2	0	5,136,000	5,500,000	3,700	4,500	90	91
4	0	5,872,000	5,784,000	4,500	4,300	89	89
6	0	6,112,000	6,000,000	5,400	5,400	89	88
23	1.0	5,992,000	6,100,000	5,800	6,000	90	90
25	1.0	....	....	....	....	....	....
27	1.0	5,812,000	6,100,000	8,500	7,900	91	91
Apr. 5	1.5	5,776,000	5,664,000	6,300	6,100	90	90
7	1.5	5,904,000	5,712,000	7,100	7,700	91	93
9	1.5	6,144,000	6,128,000	6,400	6,500	91	88
19	1.5	5,516,000	5,616,000	7,800	6,300	93	92
21	1.5	5,926,000	5,872,000	7,600	7,000	91	92
23	1.5	5,992,000	5,832,000	4,900	4,100	92	92
29	1.5	5,756,000	5,736,000	6,000	7,100	93	94

SUBJECT J. W. D.

Date.	Daily dose of saccharin.	Red cells, Right.	Red cells, Left.	White cells, Right.	White cells, Left.	Hemoglobin, Right.	Hemoglobin, Left.
Mar. 3	0	5,788,000	5,640,000	6,100	5,900	....	....
5	0	5,632,000	5,680,000	6,000	4,100	90	90
7	0	5,808,000	5,536,000	4,100	3,800	93	92
22	1.0	5,888,000	5,998,000	6,300	6,000	92	89
24	1.0	....	....	....	....	....	....
26	1.0	5,924,000	6,276,000	6,500	5,800	91	90
Apr. 4	1.5	5,096,000	6,160,000	7,300	8,600	92	91
8	1.5	5,812,000	5,926,000	8,100	7,200	91	90
10	1.5	5,432,000	5,816,000	4,800	5,100	90	87
18	1.5	5,584,000	5,826,000	6,000	5,600	91	94
20	1.5	5,808,000	5,788,000	5,600	6,100	93	93
22	1.5	6,096,000	6,240,000	4,000	4,600	95	94
30	1.5	5,992,000	5,852,000	7,100	7,200	92	94

GASTRIC CONTENTS.

The study of the gastric contents for the hydrochloric acid in the gastric juice was carried out by means of two different methods, that of Winter and that of Mintz. The only physiological modification worthy of comment was an increase in the free hydrochloric acid of the gastric juice, which was observed in both subjects and by both chemical methods. The rise in the free hydrochloric acid is distinct, yet does not apparently exceed the extreme physiological limits of health. There seems to be no reasonable ground for doubting that the rise in free hydrochloric acid was due to the administration of saccharin.

TABLE 49.—*Gastric examination.*

SUBJECT H. E. D.

Date.	Daily dose of saccharin.	Amount.			Hydrochloric acid per 100 c. c. of filtered gastric contents.							Total acidity per 100 c. c. of filtered gastric contents.	
		Total.	Filtrate.	Mucus.	Total calculated from total chlorine.	Combined.	Mineral.	Free, in terms of cubic centimeters tenth normal acid and grams hydrochloric acid. Winter method.		Mintz method.		In terms of tenth normal acid.	In terms of hydrochloric acid.
1910.	*Grams.*	*c. c.*	*c. c.*		*Gram.*	*Gram.*	*Gram.*	*c. c.*	*Gm.*	*c. c.*	*Gram.*	*c. c.*	*Gram.*
Mar. 2..	0	150	110	....	0.317	0.131	0.135	14	0.051	24	0.087	45	0.164
4..	0	......	......	....	.332	.094	.186	14	.051	12	.043	36	.131
6..	0	100	80	....	.357	.113	.182	17	.062	20	.072	42	.153
23..	1.0	60	40	....	.270	.199	.029	11	.042	14	.051	34	.124
25..	1.0	80	......	Little.	......	......	......	......	......	26	.094	40	.146
27..	1.0	40	30	....	.299	.197	.080	6	.022	14	.051	36	.131
Apr. 5..	1.5	110	90	....	.277	.110	.087	22	.080	24	.087	38	.175
7..	1.5	140	90	....	.408	.189	.109	30	.109	32	.116	78	.284
9..	1.5	70	50	....	.408	.192	.063	39	.143	52	.189	76	.277
19..	1.5	100	90	....	.350	.124	.131	26	.094	28	.102	60	.219
21..	1.5	180	110	....	.365	.219	.102	12	.043	14	.051	58	.211
23..	1.5	50	30	....	.401	.153	.119	38	.138	38	.138	68	.248
29..	1.5	55	40	....	.401	.124	.131	40	.146	40	.146	64	.233
SUBJECT J. W. D.													
Mar. 3..	0	110	80	....	0.401	0.211	0.124	1.7	0.006	2.5	0.009	53	0.194
5..	0	......	......	....	.824	.616	.060	43	.158	42	.153	70	.255
7..	0	240	200	....	.365	.199	.036	28	.102	32	.116	64	.233
22..	1.0	110	75	....	.321	.180	.028	28	.102	38	.139	64	.233
24..	1.0	80	......	Little.	......	......	......	......	......	36	.131	56	.204
26..	1.0	110	80	...do...	.416	.219	.064	38	.138	42	.153	68	.262
Apr. 4..	1.5	120	......	....	.357	.233	.051	20	.073	54	.197	84	.306
8..	1.5	135	115	....	.365	.138	.109	32	.116	32	.116	64	.233
10..	1.5	140	100	....	.408	.190	.087	36	.131	36	.131	80	.292
18..	1.5	120	75	....	.408	.168	.160	22	.080	34	.124	62	.226
20..	1.5	110	90	....	.379	.080	.175	34	.124	34	.124	54	.197
22..	1.5	135	90	....	.416	.189	.080	40	.146	38	.138	62	.226
30..	1.5	100	75	....	.335	.080	.189	18	.065	18	.065	40	.146

THE INFLUENCE OF SACCHARIN UPON A CASE OF HYPERCHLORHYDRIA.

A study of the effect of saccharin on a case of hyperchlorhydria was made by W. G. Lyle, M. D. The subject, H. W., was a man 54 years of age. He was selected for this experiment with the idea of seeing whether saccharin in large doses would increase the gastric acidity enough to cause the patient pain, inconvenience, or in any way be detrimental to his nutrition. He had had nearly continuous high acidity for a period of two years. Several examinations covering this time showed the free hydrochloric acid to have averaged about 60.

The subject took saccharin in the form of the sodium compound in solution with his meals. The solution was prepared by dissolving 1 part of saccharin in 6 parts of water containing 0.5 part of sodium bicarbonate. The duration of the experiment was 61 days. For the first period of 21 days the subject took 0.3 gram saccharin

daily, for the second period of 17 days he took 0.6 gram saccharin daily, and for the third or last period of 23 days he took 1.2 grams of saccharin daily.

During the experiment it will be seen by reference to the accompanying table that his acidity increased for a period of about 7 weeks, then gradually subsided, although he had taken in the last week of the experiment twice the amount of saccharin that he took on the day that his acidity was highest.

The subject's urine was normal. On one occasion, April 6, he had a few hyaline casts, but there was never any albumin, and indican was only found once. No deductions could be drawn from any urinary evidence of intestinal disturbance.

As regards the feces, there were three examinations—April 3, 10, and 20—when the stools were slightly acid in reaction. There was no interference with starch or fat digestion. The stools were normal.

The blood examinations showed practically the same result at the beginning and at the end of the experiment. There were 4,200,000 red cells and 6,800 white cells per cubic millimeter and 76 per cent of polynuclear leucocytes.

In conclusion it may be said that, both from the testimony of the subject in regard to his condition and from the result of the physical examination, no deleterious effects could be attributed to the ingestion of saccharin.

TABLE 50.—*Gastric examination.*

SUBJECT H. W.

Date.	Daily dose of saccharin.	Free hydrochloric acid per 100 c. c. of filtered gastric contents (Toepfer's method).		Total acidity per 100 c. c. of filtered gastric contents.		Date.	Daily dose of saccharin.	Free hydrochloric acid per 100 c. c. of filtered gastric contents (Toepfer's method).		Total acidity per 100 c. c. of filtered gastric contents.	
		In terms of tenth normal acid.	In terms of hydrochloric acid.	In terms of tenth normal acid.	In terms of hydrochloric acid.			In terms of tenth normal acid.	In terms of hydrochloric acid.	In terms of tenth normal acid.	In terms of hydrochloric acid.
1910.	*Gram.*	*c. c.*	*Gram.*	*c. c.*	*Gram.*	1910.	*Grams.*	*c. c.*	*Gram.*	*c. c.*	*Gram.*
Mar. 6	0.3	56	0.204	84	0.306	Apr. 6	0.6	78	0.285	100	0.365
13	.3	59	.215	92	.326	10	.6	80	.292	120	.438
16	.3	55	.201	100	.365	13	1.2	82	.299	118	.432
20	.3	63	.230	103	.376	17	1.2	79	.288	109	.398
23	.3	70	.256	110	.400	20	1.2	64	.233	97	.354
27	.6	74	.270	109	.398	24	1.2	60	.219	94	.343
31	.6	78	.285	103	.376	27	1.2	56	.204	99	.361
Apr. 3	.6	88	.321	120	.438	May 5	1.2	58	.212	89	.325

THE INFLUENCE OF SACCHARIN AND OF ITS SODIUM SALT UPON THE ACTION OF DIGESTIVE ENZYMES.

The following investigation was undertaken with the object of obtaining accurate information as to the retarding or accelerating effect of saccharin and its sodium salt upon the action of the digestive enzymes on typical foodstuffs. The investigation may be divided into the following sections:

(I) The influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the saliva.

(II) The comparative effect of free saccharin and of free hydrochloric acid upon the hydrolysis of starch by the enzymes of the saliva.

(III) The influence of free saccharin upon the hydrolysis of egg albumen by the peptic enzyme of the stomach.

(IV) The influence of the sodium salt of saccharin upon the hydrolysis of casein by the tryptic enzyme of the pancreas.

(V) The influence of the sodium salt of saccharin upon the hydrolysis of olive oil by the lipoclastic enzyme of the pancreas.

(VI) The influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the pancreas.

(VII) The comparative effect of free saccharin and of free hydrochloric acid upon the hydrolysis of starch by the enzymes of the pancreas.

The general method of procedure was to allow solutions of the various enzymes concerned with alimentary digestion to act upon typical foodstuffs. To some of these mixtures solutions of saccharin or of its sodium salt had been previously added; to the others no such addition had been made, but only a volume of water equivalent to the volume of the saccharin solution. In this way the volume of the various mixtures was kept constant for any one series of experiments. After a definite length of time, before the hydrolysis of the foodstuff was complete, the action of the enzyme was checked by heating the solution. By suitable chemical methods the extent of hydrolysis in each mixture could be determined, and by comparing the results obtained from experiments in which saccharin or its salt were either absent or present it was possible to draw conclusions as to the influence of the saccharin or its sodium salt upon the action of the digestive enzymes. In every case the saccharin or its sodium salt was added to the foodstuff before the addition of the enzyme. The enzyme solution was invariably added last to the digestion mixtures. No antiseptics were added to any of the solutions, but precautions were taken to avoid bacterial contaminations by using sterilized flasks and sterilized solutions whenever practicable and also by restricting the time of digestion within moderate limits.

All the experiments recorded in the present report were conducted at temperatures between 37° and 38° C. The actual range of tem-

perature during any one experiment was less than 0.5° C. The digestions were performed in closed flasks immersed in a jacketed water thermostat stirred by a mechanical stirrer and maintained at an even temperature by means of a sensitive toluol thermoregulator. The typical foodstuffs selected for examination were starch, egg albumen, casein, and olive oil. The solutions of enzymes employed in these experiments were in part of human origin, in part derived from lower animals. No material difference was noted in the action of the enzymes of different origin.

In every case preliminary experiments were made to determine appropriate relations between the quantity of substrate and the amount of enzyme, for it is clear that the inhibitory action of any particular compound might readily be masked, provided a sufficient excess of enzyme was present. Accordingly, conditions were always chosen in which the enzyme concentration was kept at a low level. The hydrolysis of the substrate under these conditions is effected at a relatively low velocity and the possibility of obtaining clear evidence of any inhibitory action of an added substance is greatly increased.

THE INFLUENCE OF THE SODIUM SALT OF SACCHARIN UPON THE HYDROLYSIS OF STARCH BY THE ENZYMES OF THE SALIVA.

The starch solution was prepared by adding about 30 grams of Lintner's soluble starch suspended in a little cold water to about a liter of actively boiling water. The mixture was then boiled for one minute and then filtered hot through a pleated filter paper into a sterilized bottle. Fresh starch solutions were made for each set of experiments. Some samples of commercial Lintner's soluble starch had to be rejected on account of their possessing a very slight acidity. The samples employed were thoroughly washed with distilled water for some time after the disappearance of any detectable traces of acidity.

The sodium salt of saccharin was prepared of normal strength by dissolving 18.3 grams of saccharin in slightly less than the theoretically equivalent amount of strong sodium hydrate solution. The solution was then brought as close as possible to the neutral point by gradually adding dilute caustic soda solution until the solution was without effect on sensitive red or blue litmus paper and then diluted to 100 c. c. The solution was freshly prepared at requent intervals.

The enzyme solution was obtained by collecting mixed saliva after carefully washing out the mouth and diluting five or ten fold with distilled water. The solution was allowed to stand for a few hours in order to give time for the precipitation of calcium salts and was then filtered through treble thicknesses of fine filter paper. The clear filtrate was employed for the following experiments without making

any attempt to neutralize the slight alkalinity of the solution. A fresh preparation was used for each experiment.

The experiments upon the effect of the sodium salt of saccharin upon salivary digestion of starch were carried out in the following way: A measured volume, usually 200 c. c., of the freshly prepared starch solution was placed in each of several sterile flasks. To each control flask (i. e., flasks to which no saccharin was added) a definite volume of water was added, while the remaining flasks received both water and saccharin sodium salt solution, the total volume of the various additions being the same in each case. The flasks containing the solutions were weighted with lead and immersed in the thermostat. In the meantime a quantity of the enzyme solution was being heated similarly in the same thermostat. After two or three hours a definite amount of the enzyme solution was added rapidly to each of the starch solutions and the time carefully noted. After suitable intervals portions (10 to 25 c. c.) of the digestive mixtures were pipetted into small flasks, which were at once immersed in boiling water to check any further action of the enzyme. The amount of starch hydrolysis effected by the enzyme acting in the presence of varying amounts of saccharin sodium salt was determined by estimating the amount of sugar formed in each of the separate portions by means of the gravimetric Fehling method. The mode of precipitation conformed to the standard conditions formulated by Brown, Morris, and Millar. (Trans. Chem. Soc., 1897, vol. 71, p. 96.) The results are expressed in the form of milligrams of cuprous oxide per cubic centimeter of solution. A correction amounting to 1.2 mg. has been applied to each estimation on account of the slight initial reducing power of the original starch and enzyme solutions. It was observed that the cuprous oxide precipitated from solutions containing much saccharin was yellower than the cuprous oxide precipitated in the absence of saccharin, but otherwise under similar conditions. Special experiments showed that the presence of the sodium salt of saccharin, at least in the quantities employed in the present investigation, did not introduce significant error into the sugar estimations.

TABLE 51.—*Influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the saliva, using 25 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.				
	I	II	III	IV	V
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	200	200.0	200	200	200
Water	50	47.5	45	40	25
Normal solution of sodium salt of saccharin		2.5	5	10	25
Enzyme solution	25	25.0	25	25	25
Total volume	275	275.0	275	275	275

TABLE 51.—*Influence of the sodium salt of saccharin upon the hydrylysis of starch by the enzymes of the saliva, using the 25 c. c. of the enzyme solution*—Continued.

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.				
	I	II	III	IV	V
	Mg.	*Mg.*	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0	0.0
0.5 hour	12.2	11.3	11.2	11.3	11.3
3 hours	15.3	15.3	15.3	15.2	15.0
6 hours	15.6	15.7	15.7	15.7	15.3
24 hours	17.1	17.4	17.2	17.1	16.6

TABLE 52.—*Influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the saliva, using 10 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.				
	I	II	III	IV	V
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	200	200	200	200.0	200
Water	40	39	35	32.5	20
Normal solution of sodium salt of saccharin	......	1	5	7.5	20
Enzyme solution	10	10	10	10.0	10
Total volume	250	250	250	250.0	250

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.				
	I	II	III	IV	V
	Mg.	*Mg.*	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0	0.0
0.5 hour	4.9	5.1	5.2	5.4	5.6
2.5 hours	12.8	13.5	13.1	13.1	13.1
6 hours	15.5	15.9	15.8	16.0	15.7
20 hours	17.3	17.8	17.5	17.8	17.2
40 hours	18.4	18.6	18.3	18.2	18.0

The results of two sets of experiments are recorded in Tables 51 and 52. In the first of these the amount of enzyme solution (25 c. c.) was greater than in the second (10 c. c.), and consequently the hydrolysis during the earlier stages of the reaction was much more rapid. In both sets of experiments the results show that the addition of the neutral sodium salt of saccharin affected the action of the enzyme only to a trifling extent. The conclusion might be drawn from Table 51 that slight inhibition was caused by the addition of the large quantity of the sodium salt of saccharin present in experiment V, while a slight acceleration appears to be caused by the

smaller amounts of the salt present in experiments II, III, and IV recorded in Table 52. When due allowance is made for the extreme sensitiveness of the enzyme to the addition of acid or alkali, coupled with the difficulty of preparing an absolutely neutral solution of the sodium salt of saccharin, and in addition the small unavoidable experimental error in the sugar determinations, it must be conceded that the effect of the presence of the sodium salt of saccharin upon the action of the salivary enzymes is very slight. The actual concentrations of the saccharin in solution V in Tables 51 and 52 amount to 1.66 and 1.46 per cent. Such concentrations as these are very much greater than those which would be apt to occur during the salivary digestion of foodstuffs containing saccharin.

THE COMPARATIVE EFFECT OF FREE SACCHARIN AND OF FREE HYDROCHLORIC ACID UPON THE HYDROLYSIS OF STARCH BY THE ENZYMES OF THE SALIVA.

The retardation or inhibition of the action of the salivary enzymes by free acids has long been known. In many cases it has been found that the relative effect of the acids is proportional to their strength or in other words the extent of their electrolytic dissociation in the digestive fluids. In order to determine whether free saccharin had any *specific* inhibitory action upon the activity of the salivary enzymes other than that due to its acidity, it was considered advisable to compare its action with that of a strong acid at corresponding molecular concentrations. For purposes of comparison, hydrochloric acid was chosen, not only because of its relatively complete dissociation in dilute solution, but also because the hydrochloric acid of the gastric secretion subserves the natural method for the inhibition of salivary digestion in the human organism. Accordingly experiments were made in which varying amounts of N/100 saccharin and N/100 hydrochloric acid were added to starch solutions to which equal amounts of enzyme solution were subsequently added. A control experiment was also carried out simultaneously in which no acid was added. From time to time portions of the different solutions were withrawn and the amount of reducing sugar formed was estimated by the gravimetric Fehling method as in the preceding experiments.

Table 53.—*Comparative effect of free saccharin and of free hydrochloric acid upon the hydrolysis of starch by the enzymes of the saliva, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.								
	I	II	III	IV	V	VI	VII	VIII	IX
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	100	100	100	100.0	100.0	100	100	100	100
Water	10	7	7	5.5	5.5	4	4	2	2
Hundredth normal saccharin	......	3	......	4.5	......	6	......	8	......
Hundredth normal hydrochloric acid	......	......	3	......	4.5	......	6	......	8
Enzyme solution	5	5	5	5.0	5.0	5	5	5	5
Total volume	115	115	115	115.0	115.0	115	115	115	115

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.								
	I	II	III	IV	V	VI	VII	VIII	IX
	Mg.	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.75 hour	15.6	12.5	11.6	4.3	4.2	.8	.8	.2	.2
3 hours	17.9	18.3	18.4	11.9	11.2	1.5	1.3	.3	.2
6 hours	19.0	19.7	19.8	16.2	15.3	2.5	2.2	.3	.2
24 hours	20.6	20.9	21.5	18.2	17.7	5.5	3.2	.4	.5

Table 54.—*Comparative effect of free saccharin and of free hydrochloric acid upon the hydrolysis of starch by the enzymes of the saliva, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.								
	I	II	III	IV	V	VI	VII	VIII	IX
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	100	100	100	100	100	100	100	100	100
Water	10	7	7	6	6	5	5	4	4
Hundredth normal saccharin	......	3	......	4	......	5	......	6	......
Hundredth normal hydrochloric acid	......	......	3	......	4	......	5	......	6
Enzyme solution	5	5	5	5	5	5	5	5	5
Total volume	115	115	115	115	115	115	115	115	115

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.								
	I	II	III	IV	V	VI	VII	VIII	IX
	Mg.	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.75 hour	13.4	9.5	10.0	5.6	5.8	.8	.7	.1	.2
2.75 hours	17.0	16.6	17.0	13.8	13.7	2.2	2.4	.4	.4
5 hours	17.7	17.7	18.1	16.6	16.9	3.0	3.3	.4	.4
24 hours	18.5	18.2	18.7	17.5	17.8	3.5	3.6	.9	7

The results of two sets of experiments, in which entirely different enzyme and starch solutions were used, are recorded in Tables 53 and 54. An inspection of the tables shows a remarkably close approximation of the inhibiting action of hydrochloric acid and of free saccharin upon the hydrolysis of starch by the enzymes of the saliva. There is no indication of any kind of inhibiting action on the part of saccharin other than that which may be ascribed to its acidity. No evidence was obtained of any specific action of the saccharin upon the salivary enzymes.

It will be seen from Tables 53 and 54 that when 100 c. c. of starch solution and 5 c. c. of enzyme solution are employed for each experiment 3 c. c. of N/100 saccharin or N/100 hydrochloric acid cause a noticeable lowering of the initial rate of hydrolysis. At the end of 25 hours, however, the hydrolysis is as complete in these solutions as in those containing no saccharin or hydrochloric acid. The extent of the initial inhibition effected by saccharin very closely approximates that effected by hydrochloric acid.

When larger quantities of saccharin or hydrochloric acid are added the inhibition is naturally more marked. When 6 to 8 c. c. of the N/100 acid solutions are added to solutions of the same composition as those used in the experiments just referred to the action of the enzyme is almost completely inhibited.

THE INFLUENCE OF FREE SACCHARIN UPON THE HYDROLYSIS OF EGG ALBUMIN BY THE PEPTIC ENZYME OF THE STOMACH.

An accurate estimation of the influence of saccharin upon peptic digestion presents certain difficulties. Most of the physical methods for the estimation of peptic digestion are not sufficiently delicate for the purpose of the present investigation. The chemical methods in common use, on the other hand, depend upon the estimation of nitrogen present in the products of digestion. The use of these methods without modification was obviously impossible, since the nitrogen present in any saccharin that might be added would be associated with that present in the form of digestion products. After a number of preliminary experiments had been made the following method was adopted. Mixtures of egg-albumin solution, dilute hydrochloric acid, and pepsin, to some of which saccharin had been added, were digested for a length of time insufficient for the complete peptic digestion of the egg albumin present. A measure of the amount of peptic digestion which had taken place in the several solutions was obtained as follows: A known volume, usually 25 c. c., of each solution was added to an excess (15 c. c.) of a 33 per cent solution of trichloracetic acid in water, and the volume of the liquid made up to 50 c. c. in a graduated flask. The trichloracetic acid precipitates the unchanged egg albumin, but in large measure leaves the

albumoses and peptones in solution. The fact that the albumoses are not readily precipitated by trichloracetic acid makes this reagent more suitable for the estimation of peptic digestion than most of those commonly employed. After standing for some hours the turbid contents of the 50 c. c. graduated flask are filtered through a double filter paper of very close texture, until a clear filtrate is obtained. Clear filtrates are much more readily obtained when the whole of the original egg albumin has not been digested by the pepsin. Since this condition of experiment is also the best for detecting any effect that the addition of saccharin might have upon peptic digestion, it was uniformly adopted. Thirty cubic centimeters of the filtrate, containing albumoses, peptones, and saccharin if added, were then shaken in a separatory funnel, successively with three separate portions of ethyl acetate measuring 25 c. c., 20 c. c., and 20 c. c. each. The object of this procedure is to remove the saccharin which is readily soluble in ethyl acetate. The aqueous solution after extraction contains the products of peptic digestion, and a measure of this was obtained by estimating the amount of nitrogen in 25 c. c. of the solution by means of Kjeldahl's method. Standard solutions of hydrochloric acid and sodium hydrate of N/10 strength were used for the nitrogen determinations. Alizarin was used as indicator.

The egg-albumin solution employed was prepared by shaking the whites of fresh eggs with water and filtering after a few hours. The concentration of the albumin was about 3 per cent. No antiseptic was added and only fresh solutions were employed. Saccharin was added in the form of a warm 1 per cent solution. Normal hydrochloric acid was added in amount corresponding to the desired acidity. Two different sources of peptic enzyme were utilized. One was a commercial preparation of high activity prepared from the gastric mucosa of the pig, while the other was obtained from a human stomach. In the latter case, a solution of the enzyme was obtained by stripping the mucosa from the muscular coat and allowing the former to macerate in N/20 hydrochloric acid. The acid extracts were poured off from time to time and then shaken with chloroform and toluene and submitted to a prolonged dialysis in a parchment tube. The residual solution was filtered and preserved at a low temperature. The pepsin from the pig was in the form of scales. A fresh solution was prepared for each experiment.

The results of the various experiments are recorded in Tables 55, 56, 57, 58, and 59.

TABLE 55.—*Influence of saccharin upon the hydrolysis of egg albumin by the peptic enzyme of the stomach, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.					
	I	II	III	IV	V	VI
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Egg-albumin solution (0.523 per cent nitrogen)	25	25	25.0	25.0	25	25.0
Normal hydrochloric acid	5	5	5.0	5.0	5	5.0
Water	15	14	12.5	7.5	....	7.5
1 per cent aqueous saccharin solution	....	1	2.5	7.5	15	7.5
Pepsin solution (pig)	5	5	5.0	5.0	5	[1] 5.0
Total volume	50	50	50.0	50.0	50	50.0

[1] Enzyme solution previously heated to 100° C.

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR 3.25 HOURS.

	Gm.
Experiment I	0.0650
Experiment II	.0667
Experiment III	.0647
Experiment IV	.0619
Experiment V	.0591
Experiment VI	.0078

RELATIVE AMOUNT OF DIGESTION USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) AS STANDARD FOR COMPARISON=100.

Experiment I	100
Experiment II	103
Experiment III	100
Experiment IV	95
Experiment V	91

TABLE 56.—*Influence of saccharin upon the hydrolysis of egg albumin by the peptic enzyme of the stomach, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.					
	I	II	III	IV	V	VI
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Egg-albumin solution (0.54 per cent nitrogen)	25.0	25.0	25.0	25.0	25.0	25.0
Normal hydrochloric acid	2.5	2.5	2.5	2.5	2.5	2.5
Water	17.5	16.5	15.0	10.0	2.5	17.5
1 per cent aqueous saccharin solution	....	1.0	2.5	7.5	15.0	....
Pepsin solution (pig)	5.0	5.0	5.0	5.0	5.0	5.0
Total volume	50.0	50.0	50.0	50.0	50.0	50.0

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR 3 HOURS.

	Gm.
Experiment I	0.0672
Experiment II	.0689
Experiment III	.0689
Experiment IV	.0667
Experiment V	.0644
Experiment VI	.056

RELATIVE AMOUNT OF DIGESTION, USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) AS STANDARD FOR COMPARISON=100.

Experiment I	100
Experiment II	103
Experiment III	103
Experiment IV	99
Experiment V	96

TABLE 57.—*Influence of saccharin upon the hydrolysis of egg albumin by the peptic enzyme of the stomach, using 10 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.					
	I	II	III	IV	V	VI
	c. c.	c. c.	c. c.	c. c.	c. c.	c. c.
Egg-albumin solution (0.45 per cent nitrogen)	30.0	30.0	30.0	30.0	30.0	30.0
Normal hydrochloric acid	1.65	1.65	1.65	1.65	1.65	1.65
Water	10.0	9.5	8.75	7.5	5.0	....
1 per cent aqueous saccharin solution	....	.5	1.25	2.5	5.0	10.0
Pepsin solution (pig)	10.0	10.0	10.0	10.0	10.0	10.0
Total volume	51.65	51.65	51.65	51.65	51.65	51.65

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR 3.5 HOURS.

	Grams.
Experiment I	0.0378
Experiment II	.0381
Experiment III	.0416
Experiment IV	.0431
Experiment V	.0463
Experiment VI	.0472

RELATIVE AMOUNT OF DIGESTION, USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) AS STANDARD FOR COMPARISON=100.

Experiment I	100
Experiment II	101
Experiment III	110
Experiment IV	114
Experiment V	122
Experiment VI	125

TABLE 58.—*Influence of the sodium salt of saccharin upon the hydrolysis of egg albumin by the peptic enzyme of the stomach, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.				
	I	II	III	IV	V
	c. c.	c. c.	c. c.	c. c.	c. c.
Egg-albumin solution (0.52 per cent nitrogen)	30	30.0	30.0	30	30
Normal solution of sodium salt of saccharin	....	.1	.5	1	3
Normal hydrochloric acid	5	5.1	5.5	6	8
Water	10	9.8	9.0	8	4
Pepsin solution (pig)	5	5.0	5.0	5	5
Total volume	50	50.0	50.0	50	50
Appearance	Clear....	Opalescent.	Slightly turbid.	Heavy p'p't., much less after 3 hours.	Very heavy p'p't., less after 3 hours.

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR 3 HOURS.

	Gram.
Experiment I	0.0554
Experiment II	.0538
Experiment III	.0498
Experiment IV	.0470
Experiment V	.0414

RELATIVE AMOUNT OF DIGESTION, USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) AS STANDARD FOR COMPARISON=100.

Experiment I	100
Experiment II	97
Experiment III	90
Experiment IV	85
Experiment V	75

TABLE 59.—*Influence of saccharin upon the hydrolysis of egg albumin by the peptic enzyme of the stomach, using 10 c. c. and 30 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.					
	I	II	III	IA	IIA	IIIA
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Egg-albumin solution	30	30	30	50	50	50
Normal hydrochloric acid	5	5	5	10	10	10
Water	10	5	....	10	5	....
1 per cent aqueous saccharin solution	....	5	10	....	5	10
Pepsin solution (human)	10	10	10	30	30	30
Total volume	55	55	55	100	100	100

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR VARIOUS LENGTHS OF TIME.

Time.	Experiment.					
	I	II	III	IA	IIA	IIIA
	Gram.	*Gram.*	*Gram.*	*Gram.*	*Gram.*	*Gram.*
2 hours	0. 0299	0. 0296	0. 0277	....	....	....
4 hours	....	....	....	0. 0907	0. 0907	0. 0885
6 hours	.0459	.0462	.0444	....	....	....
8 hours	....	....	....	.1131	.1120	.1075

AVERAGE RELATIVE AMOUNT OF DIGESTION USING EXPERIMENTS I AND IA (IN WHICH NO SACCHARIN WAS ADDED) AS STANDARD FOR COMPARISON=100.

Experiment I	100
Experiment II	100
Experiment III	95
Experiment IA	100
Experiment IIA	99
Experiment IIIA	96

Tables 55, 56, and 57 contain the results of experiments upon the action of saccharin upon peptic digestion in the presence of varying amounts of free hydrochloric acid. An inspection of Table 57, in which the hydrochloric-acid concentration was relatively low (approximately N/30) shows that the addition of free saccharin accelerates the rate of hydrolysis. The beneficial effect of the saccharin upon the action of the peptic enzyme is doubtless to be ascribed to the acid character of the substance. The experiments recorded in Tables 55 and 56 were carried out with higher hydrochloric-acid concentrations (approximately N/10 and N/20). Under these conditions a slight accelerating effect upon the action of the enzyme was noted as the result of small additions of saccharin, while larger additions appeared to produce a slight retardation of the speed of enzyme action.

Table 58 contains the results of some experiments upon the influence of the sodium salt of saccharin upon the hydrolysis of egg albumin by pepsin in the presence of hydrochloric acid. The moderate retardation of the action of the enzyme observed in these experiments is doubtless in large measure to be referred to the diminution

in the concentration of free hydrochloric acid caused by the addition of the neutral sodium salt of saccharin to the solution.

Table 59 contains the results of experiments similar to those recorded in Table 55, with the exception that pepsin of human origin was employed. No material difference in the character of the results was noted.

In no case did the addition of saccharin in such concentration as might result from its use for the sweetening of food result in any material modification of the course of peptic digestion.

THE INFLUENCE OF THE SODIUM SALT OF SACCHARIN UPON THE HYDROLYSIS OF CASEIN BY THE TRYPTIC ENZYME OF THE PANCREAS.

The experiments planned to determine the effect of the sodium salt of saccharin upon tryptic digestion were carried out as follows: Casein (25–35 grams) prepared according to Hammersten's directions was dissolved in a dilute solution of sodium carbonate (1,000 c. c.) of either 0.25 or 0.125 per cent concentration, by shaking for several hours, using a mechanical shaker, and subsequently filtering the solution.

The enzyme solutions were prepared from a highly active commercial trypsin preparation and also from a normal human pancreas. The latter was finely minced and shaken with water with the addition of chloroform and toluene. The mixture was allowed to digest for 48 hours at 37° and then the aqueous extract was thoroughly dialysed in parchment tubes for several days. The resulting solution was filtered and preserved at a low temperature.

A neutral solution of the sodium salt of saccharin was prepared in the same way as for experiments in section I, on the influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the saliva. (See p. 103.)

The experiments were conducted by adding definite volumes of the saccharin solution to separate portions of the alkaline casein solution to each of which trypsin was subsequently added. Control experiments in which no saccharin was added were carried out simultaneously. The amount of hydrolysis effected by the enzyme in each of the separate solutions was estimated in the following way: Twenty-five cubic centimeters of each solution was added to an equal volume of a tannic acid solution identical in composition with that used by Hedin in his investigations upon tryptic digestion (Journ. of Physiology, vol. 32, p. 468). The tannic acid solution contained, per liter, 100 grams tannic acid (Kahlbaum), 100 grams sodium chloride, 50 grams acetic acid. After 12 hours the liquid in which precipitation with tannic acid had been carried out was filtered

through a dry filter paper. The filtrate contained the simpler products of tryptic digestion (amino acid and peptones) together with any saccharin that had been added. The former were estimated after the removal of the saccharin. Twenty-five cubic centimeters of the filtrate were placed in a small separatory funnel. One cubic centimeter of sulphuric acid was added, together with sufficient salt to saturate the solution. The saccharin was then extracted by shaking the solution successively with three separate quantities of ethyl acetate (25 c. c., 20 c. c., 20 c. c.). Each ethyl acetate extract was washed by shaking with a small quantity of saturated salt solution, the washings being added to the main bulk of the aqueous solution. An estimation of the amount of the products of tryptic digestion was then made by determining the amount of nitrogen in the saccharin-free solution, using Kjeldahl's method. Hydrochloric acid and sodium hydrate of decinormal strength were employed for the estimation of the ammonia.

TABLE 60.—*Influence of the sodium salt of saccharin upon the hydrolysis of casein by the tryptic enzyme of the pancreas, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.							
	I	II	III	IV	V	VI	VII	VIII
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Casein solution (0.25 per cent Na_2CO_3, 0.346 per cent nitrogen)	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Normal solution of sodium salt of saccharin	....	.1	.5	1.0	3.3	10.0	....	10.0
Trypsin solution	5.0	5.0	5.0	5.0	5.0	5.0	[1] 5.0	[1] 5.0
Water	20.0	19.9	19.5	19.0	16.7	10.0	20.0	10.0
Total volume	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] Enzyme solution previously heated to 100° C.

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR 4 HOURS.

	Gram.
Experiment I	0.1781
Experiment II	.1792
Experiment III	.1781
Experiment IV	.1803
Experiment V	.1725
Experiment VI	.1646
Experiment VII	.0123
Experiment VIII	.0134

RELATIVE AMOUNT OF DIGESTION USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) FOR STANDARD OF COMPARISON=100.

Experiment I	100
Experiment II	101
Experiment III	100
Experiment IV	101
Experiment V	97
Experiment VI	92
Experiment VII	....
Experiment VIII	....

TABLE 61.—*Influence of the sodium salt of saccharin upon the hydrolysis of casein by the tryptic enzyme of the pancreas, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.				
	I	II	III	IV	V
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Casein solution (0.125 per cent Na_2CO_3, 0.479 per cent nitrogen).	30.0	30.0	30.0	30.0	30.0
Normal solution of sodium salt of saccharin	....	.1	.5	2.5	10.0
Trypsin solution [1]	5.0	5.0	5.0	5.0	5.0
Water	15.0	14.9	14.5	12.5	5.0
Total volume	50.0	50.0	50.0	50.0	50.0

[1] This solution was approximately half the concentration of the solution used in the preceding experiments.

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR 3.5 HOURS.

	Gram.
Experiment I	0.0703
Experiment II	.0714
Experiment III	.0703
Experiment IV	.0666
Experiment V	.0622

RELATIVE AMOUNT OF DIGESTION USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) FOR STANDARD OF COMPARISON=100.

Experiment I	100
Experiment II	102
Experiment III	100
Experiment IV	95
Experiment V	88

TABLE 62.—*Influence of the sodium salt of saccharin upon the hydrolysis of casein by the tryptic enzyme of the pancreas, using 10 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.				
	I	II	III	IV	V
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Casein solution (0.125 per cent Na_2CO_3, 0.48 per cent nitrogen)	30.0	30.0	30.0	30.0	30.0
Normal solution of sodium salt of saccharin	....	.1	.5	2.5	10.0
Trypsin solution (human)	10.0	10.0	10.0	10.0	10.0
Water	10.0	9.9	9.5	7.5	....
Total volume	50.0	50.0	50.0	50.0	50.0

NITROGEN IN PRODUCTS OF DIGESTION AFTER INCUBATION FOR VARIOUS LENGTHS OF TIME.

Time.	Experiment.				
	I	II	III	IV	V
	Gram.	*Gram.*	*Gram.*	*Gram.*	*Gram.*
3 hours	0.0521	0.0498	0.0498	0.0515	0.0454
6 hours	.0767	.0778	.0778	.0784	.0722

AVERAGE RELATIVE AMOUNT OF DIGESTION USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) FOR STANDARD OF COMPARISON=100.

Experiment I	100
Experiment II	99
Experiment III	99
Experiment IV	101
Experiment V	91

The results of the experiments are recorded in Tables 60, 61, and 62. In the first series of experiments the casein was dissolved in 0.25 per cent sodium carbonate solution; in the others half this concentration was used. No material difference was noted in the results obtained when trypsin of human or other origin was employed, nor did the varying amounts of alkali influence the character of the results. An examination of the figures contained in Tables 60, 61, and 62 shows that the sodium salt of saccharin exerts no material influence upon the hydrolysis of casein by trypsin unless present in concentrations infinitely greater than could ever occur in the actual use of the substance for dietetic purposes. Thus in experiment IV, Table 62, the concentration of saccharin was equal to 9.15 grams per liter, equivalent in sweetening power to about 4.5 kilograms of cane sugar, yet no inhibition of the action of human trypsin upon the casein undergoing hydrolysis could be detected.

THE INFLUENCE OF THE SODIUM SALT OF SACCHARIN UPON THE HYDROLYSIS OF OLIVE OIL BY THE LIPOCLASTIC ENZYME OF THE PANCREAS.

Experiments to determine the influence of the sodium salt of saccharin upon the hydrolysis of olive oil by pancreatic enzymes were carried out as follows: A fine emulsion of olive oil was prepared by vigorously shaking 450 c. c. of pure olive oil possessing a low grade of acidity with 50 c. c. of aqueous N/20 caustic soda. By this method a neutral emulsion was readily obtained which remained in a fine state of division for a long period of time. Five cubic centimeters of the emulsion was measured out into each of a number of stoppered flasks by means of a pipette with broad bore. Varying amounts of a neutral solution of the sodium salt of saccharin were then added to some of the flasks and finally 1 to 2 c. c. of a turbid pancreas extract containing about 5 per cent of total solids. The mixtures were maintained at a temperature of 37° and were frequently shaken in as uniform a manner as was possible. At the close of the experiments the amount of free fatty acids liberated as the result of enzyme action was determined by titration with alkali. The alkali employed was prepared by dissolving 2.3 grams of metallic sodium in a little less than a liter of absolute alcohol, and, after determining the strength of the solution by titration against standard acid, diluting with absolute alcohol so that the resulting solution was exactly decinormal. The titration of the fatty acids was carried out by adding 50 c. c. of absolute alcohol to the contents of each flask together with a little alcoholic phenolphthalein solution. The mixture was then heated until almost boiling and rapidly titrated with the N/10 alkali until a pink tinge permanent for 10 seconds was obtained. A number of duplicate experiments were invariably car-

ried out, since slight differences in shaking, etc., during the period of enzyme action are apt to produce noticeable differences in the final titration. The results, representing in each case the average of two or more titrations, are recorded in Tables 63 and 64.

TABLE 63.—*Influence of the sodium salt of saccharin upon the hydrolysis of olive oil by the lipolytic enzyme of the pancreas, using 2 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.							
	I	II	III	IV	V	VI	VII	VIII
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Emulsified olive oil (90 per cent oil)	5	5.0	5.0	5.0	5.0	5.0	5	5
Normal solution of sodium salt of saccharin	......	.025	.05	.1	.25	.5	1	1
Water	1	.975	.95	.9	.75	.5	....	....
Enzyme solution	2	2.0	2.0	2.0	2.0	2.0	2	[1] 2
Total volume	8	8.0	8.0	8.0	8.0	8.0	8	8

[1] Enzyme solution heated to 100° C.

ACIDITY IN TERMS OF TENTH NORMAL ALKALI OF SOLUTION AT EXPIRATION OF VARIOUS LENGTHS OF TIME.

Time.	Experiment.							
	I	II	III	IV	V	VI	VII	VIII
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
4 hours	11.7	11.9	11.7	12.1	11.9	10.5	9.1	4.8
20 hours	21.2	21.4	21.1	21.8	21.8	20.1	16.4	5.0

RELATIVE AMOUNT OF HYDROLYSIS AFTER 20 HOURS, USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) FOR STANDARD OF COMPARISON=100.

Experiment I	100
Experiment II	101
Experiment III	99
Experiment IV	104
Experiment V	104
Experiment VI	93
Experiment VII	70

TABLE 64.—*Influence of the sodium salt of saccharin upon the hydrolysis of olive oil by the hipolytic enzyme of the pancreas, using 1 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituent.	Experiment.							
	I	II	III	IV	V	VI	VII	VIII
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Emulsified olive oil (90 per cent oil)	5	5.0	5.0	5.0	5.0	5.0	5	5
Neutral solution of sodium salt of saccharin	....	.025	.05	.1	.25	.5	1	1
Water	1	.975	.95	.9	.75	.5	....	....
Enzyme solution	1	1.0	1.0	1.0	1.0	1.0	1	[1] 1
Total volume	7	7.0	7.0	7.0	7.0	7.0	7	7

[1] Enzyme solution heated to 100° C.

ACIDITY OF SOLUTION AT EXPIRATION OF 20 HOURS.

	c. c.
Experiment I	19.6
Experiment II	20.1
Experiment III	19.4
Experiment IV	20.0
Experiment V	19.8
Experiment VI	19.7
Experiment VII	18.9
Experiment VIII	3.0

RELATIVE AMOUNT OF HYDROLYSIS AFTER 20 HOURS, USING EXPERIMENT I (IN WHICH NO SACCHARIN WAS ADDED) FOR STANDARD OF COMPARISON=100.

Experiment I	100
Experiment II	103
Experiment III	99
Experiment IV	102
Experiment V	101
Experiment VI	101
Experiment VII	96

An examination of the figures recorded in these tables shows that the influence of the sodium salt of saccharin upon the action of lipase is very slight. From experiment V, Table 63, it will be seen that 0.25 c. c. of the normal solution of the sodium salt of saccharin had no appreciable influence upon the amount of hydrolysis of olive oil effected by the lipase at the end of either 4 or 20 hours. The total volume of the liquid was 8 c. c., of which 3.5 c. c. represents the aqueous portion, and from this it is calculated that the concentration of saccharin in the aqueous solution is equal to 1.31 per cent. Similarly the saccharin concentration of the aqueous solution in experiment VI, Table 64, is equal to 3.66 per cent, but no inhibiting action upon the lipase was observed. It is inconceivable that the employment of saccharin for the purpose of sweetening food could ever result in the duodenal contents possessing a saccharin concentration approaching these limits. It may be safely concluded, therefore, that the action of lipase in effecting the hydrolysis of fats is not significantly affected by the presence of the sodium salt of saccharin in amounts materially greater than those that might result from its employment for the purpose of sweetening food.

THE INFLUENCE OF THE SODIUM SALT OF SACCHARIN UPON THE HYDROLYSIS OF STARCH BY THE ENZYMES OF THE PANCREAS.

The experiments upon the action of the sodium salt of saccharin upon the hydrolysis of starch by means of the pancreatic enzymes were made in a precisely similar fashion to those upon the action of the same salt upon starch digestion by salivary enzymes (section I), with the exception that a dilute aqueous pancreatic extract was employed instead of saliva. The amount of hydrolysis in the various experiments was determined as before by means of the gravimetric Fehling method. The results expressed in the form of milligrams of cuprous oxide per cubic centimeter of solution are recorded in Tables

65 and 66. A correction amounting on the average to 1.25 mg. per cubic centimeter has been applied in order to correct the slight initial reducing power of the solutions. The experiments recorded in Table 65 were carried out with approximately twice the amount of pancreatic enzyme employed in the experiments in Table 66; in other respects the two sets of experiments were similar.

TABLE 65.—*Influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the pancreas, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituents.	Experiment.			
	I	II	III	IV
	c. c.	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	100	100	100	100
Water	20	19	15	5
Normal solution of sodium salt of saccharin	......	1	5	15
Enzyme solution	5	5	5	5
Total volume	125	125	125	125

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.			
	I	II	III	IV
	Mg.	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0
0.5 hour	5.9	6.0	5.9	6.1
2.75 hours	13.8	14.1	13.4	12.8
4.5 hours	15.2	15.3	14.8	13.8
18 hours	17.3	17.4	16.9	16.0
24 hours	17.3	17.4	17.1	16.3

TABLE 66.—*Influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the pancreas, using 10 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituents.	Experiment.			
	I	II	III	IV
	c. c.	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	100	100	100	100
Water	15	14	12	5
Normal solution of sodium salt of saccharin	......	1	3	10
Enzyme solution	10	10	10	10
Total volume	125	125	125	125

TABLE 66.—*Influence of the sodium salt of saccharin upon the hydrolysis of starch by the enzymes of the pancreas, using 10 c. c. of the enzyme solution*—Continued.

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.			
	I	II	III	IV
	Mg.	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0
0.5 hour	11.5	11.2	11.0	10.2
2.5 hours	16.1	16.0	15.8	15.9
4.5 hours	17.0	17.0	17.1	16.7
18 hours	17.6	17.7	17.6	17.4
24 hours	17 6	17.7	17.7	17.3

The results show that the presence of even large amounts of the neutral sodium salt of saccharin only influences the action of the pancreatic enzymes upon starch solutions to a trifling extent. Thus the experiments IV, Tables 65 and 66, indicate a slight inhibitory action of the saccharin salt. The saccharin concentrations in these two solutions are equal to 2.2 and 1.46 per cent. Such concentrations as these are infinitely greater than any that could result from the dietetic employment of saccharin for the purpose of sweetening food. The lower concentrations of the sodium salt of saccharin used in the other experiments recorded in Tables 65 and 66 had no material effect upon the action of the pancreatic enzymes.

THE COMPARATIVE EFFECT OF FREE SACCHARIN AND OF FREE HYDROCHLORIC ACID UPON THE HYDROLYSIS OF STARCH BY THE ENZYMES OF THE PANCREAS.

The experiments to determine the relative effect of free saccharin and of free hydrochloric acid upon the action of the pancreatic enzymes upon starch were similar in every respect to those described on page 106, with the exception that a dilute pancreas extract was substituted for the saliva solution. Varying small amounts of both saccharin and hydrochloric acid in N/100 concentration were added to separate portions of starch solutions. Appropriate additions of pancreatic extract were subsequently made, and the relative amount of hydrolysis in the different solutions was determined at varying intervals, by estimating the amount of reducing sugar formed, by means of the gravimetric Fehling method. Control experiments were always carried out, in which no addition of either saccharin or hydrochloric acid had been made. The results are recorded in Tables 67 and 68. The enzyme solution employed in the second series of experiments (Table 68) was approximately half the concentration of that employed in the first series, and it will be noticed that an equal addition of acid has greater effect in the experiments with lower enzyme concentration than in those with a higher concentration.

TABLE 67.—*Comparative effect of free saccharin and of free hydrochloric acid upon the hydrolysis of starch by the enzymes of the pancreas, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituents.	Experiment.						
	I	II	III	IV	V	VI	VII
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	100	100	100	100	100	100	100
Water	10	7	7	6	6	5	5
Hundredth normal saccharin	....	3	....	4	....	5	....
Hundredth normal hydrochloric acid	....	....	3	....	4	....	5
Enzyme solution	5	5	5	5	5	5	5
Total volume	115	115	115	115	115	115	115

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.						
	I	II	III	IV	V	VI	VII
	Mg.	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.75 hour	12.5	6.8	6.9	2.4	1.8	.0	.0
3 hours	16.6	13.1	13.1	3.0	2.1	.0	.0
5 hours	17.5	13.8	13.8	3.0	2.2	.1	.1
21 hours	18.4	13.8	13.8	3.0	2.2	.1	.1

TABLE 68.—*Comparative effect of free saccharin and of free hydrochloric acid upon the hydrolysis of starch by the enzymes of the pancreas, using 5 c. c. of the enzyme solution.*

COMPOSITION OF THE SOLUTION.

Constituents.	Experiment.						
	I	II	III	IV	V	VI	VII
	c. c.	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*	*c. c.*
Soluble starch solution	100	100	100	100	100	100	100
Water	10	8	8	6	6	4	4
Hundredth normal saccharin	....	2	....	4	....	6	....
Hundredth normal hydrochloric acid	....	....	2	....	4	....	6
Enzyme solution	5	5	5	5	5	5	5
Total volume	115	115	115	115	115	115	115

REDUCING SUGARS.

[Cuprous oxide per 1 c. c. of solution.]

Time.	Experiment.						
	I	II	III	IV	V	VI	VII
	Mg.	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*Mg*	*Mg.*
0.0 hour	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.75 hour	8.2	4.6	4.4	.3	.4	.0	.0
2.5 hours	14.6	11.8	11.6	.5	.5	.0	.0
5 hours	16.2	14.5	14.4	.6	.6	.0	.1
24 hours	17.3	14.6	14.7	1.0	.8	.1	.1

An examination of the results recorded in the tables shows that the inhibition of the enzyme action caused by addition of saccharin is almost exactly the same as that brought about by equal molecular concentration of hydrochloric acid. There is no evidence of any *specific* inhibition by saccharin of the action of the pancreatic enzymes upon starch. The action of the pancreatic enzymes upon starch is very easily influenced by the presence of small quantities of acids, including, for example, the hydrochloric acid of the gastric secretions. The inhibition of the enzyme action observed in the case of saccharin may be fairly ascribed to the acid character of the substance. Since the inhibition is no greater than that of a corresponding molecular concentration of hydrochloric acid, and since the animal body is provided with an efficient regulatory mechanism for the maintenance of the reaction of the duodenal contents at a point favorable to enzyme action, it is not probable that saccharin in any concentration likely to be used for food-sweetening purposes exerts any significant influence upon starch digestion. It may be fairly assumed that any free saccharin which may be present in the gastric contents will on passing to the duodenum be neutralized by the alkaline pancreatic juice in the same manner as the hydrochloric acid of the gastric contents. The saccharin after neutralization exerts no material influence upon the action of the pancreatic enzymes upon starch, even when present in considerably larger amounts than those which could possibly be present as the result of the use of saccharin for sweetening purposes.

THE INFLUENCE OF SACCHARIN ON MICROORGANISMS.

As diverse views have been expressed regarding the action of saccharin on microorganisms, it seemed desirable in connection with the present research to reinvestigate this point. The microorganisms selected for study were *B. coli communis*, *B. typhosus*, *B. cloacæ*, *B. paratyphosus B.* (Schottmueller), *Proteus vulgaris*, and a proteuslike organism differing from *Proteus vulgaris* only in unimportant respects. The accompanying tables show clearly the influence of various concentrations of saccharin in dextrose bouillon on the action of various microorganisms.

In Table 69 is shown the action of saccharin on *B. coli communis* and *B. typhosus*, both on the gas production, in the case of *B. coli communis*, and on the growth of microorganisms. It was observed that the effect of 0.2 per cent of saccharin, when neutralized by ammonium hydroxide, is very slight in an inhibitory direction on *B. coli communis* and that 0.3 per cent of saccharin had apparently no effect on the typhoid organisms.

Table 70 shows that 0.3 per cent of saccharin had no effect upon gas production of *Proteus vulgaris* and no considerable effect on the proteuslike organism employed in the test. In concentrations of

0.18 per cent of saccharin there appears to have been a slight inhibition in gas production of the paratyphoid organism, but even with 0.3 per cent of saccharin the inhibiting effect remains small. In the case of *B. cloacæ* 0.095 per cent of saccharin sufficed to cause a considerable fall in gas production. The effect of 0.3 per cent of saccharin does not appear to have been materially greater.

In another experiment (Table 71), showing the effect of saccharin on the growth of *Proteus vulgaris*, it was found that 0.1 per cent of saccharin had no influence on the growth of the organism. In this case the saccharin was added to the bouillon before sterilization in a neutral solution.

Table 72 gives the data on the preparation of saccharin bouillon, the acidity having been brought back to that of the control medium through the addition of alkali.

In the experiments given in Tables 69 and 70 the saccharin was added to the dextrose bouillon and the bouillon made neutral or acid as the case might be.

The fermentation tubes were filled with medium and steamed on three successive days; then inoculated with one loop of the 24-hour bouillon culture of the organism.

TABLE 69.—*Growth of Bacillus coli communis and Bacillus typhosus in dextrose bouillon containing saccharin neutralized by NH_4OH.*

	Bacillus coli communis XVIII.				Bacillus typhosus VIII.			
Saccharin (per cent)	0.0	0.1	0.2	0.3	0.0	0.1	0.2	0.3
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Reaction of medium	−0.5	−0.8	−1.2	−1.8	−0.5	−0.8	−1.2	−1.8
Growth or gas at—								
24 hours	30.0	18.0	24.0	15.0	[1]	[2]	....	[3]
48 hours	28.0	18.0	24.0	15.0	[1]	....	....	[4]
96 hours	27.0	17.0	21.0	14.0	[1]	....	....	....
Reaction of bulb	−3.1	−2.9	−2.7	−2.9	−2.4	−2.3	−2.8	−3.2
Reaction of branch	−3.1	−2.8	−2.7	−2.8	−2.5	−2.5	−2.5	−2.8
Acid formed in bulb	−2.6	−2.1	−1.5	−1.1	−1.9	−1.7	−1.3	−1.0

GROWTH OF BACILLUS COLI COMMUNIS AND BACILLUS TYPHOSUS IN DEXTROSE BOUILLON CONTAINING SACCHARIN IN VARYING PERCENTAGES AND MADE APPROXIMATELY −2 PER CENT ACID.

	Bacillus coli communis XVIII.				Bacillus typhosus VIII.			
Saccharin (per cent)	0.0	0.1	0.2	0.3	0.0	0.1	0.2	0.3
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Reaction of medium	−1.7	−1.9	−2.0	−2.0	−1.7	−1.9	−2.0	−2.0
Growth or gas at—								
24 hours	10.0	[5]	[5]	[5]	[6]	[6]	[6]	[6]
48 hours	17.0	[5]	[7]	0.2	[8]	[8]	[8]	[8]
96 hours	16.0	[9]	[7]	0.2	[8]	[8]	[8]	[8]
Reaction of bulb	−2.8	−2.7	−2.5	−2.4	−2.8	−2.2	−2.2	−2.3
Reaction of branch	−2.8	−2.3	−2.2	−2.2	−2.5	−2.1	−2.1	−2.2
Acid formed in bulb	−1.1	−.8	−.5	−.4	−1.1	−.3	−.2	−.3

[1] Growth.
[2] No apparent inhibition.
[3] Slight inhibition.
[4] Inhibition (?).
[5] Slight growth.
[6] Slight growth in bulb.
[7] Not as dense as control.
[8] Granular growth.
[9] Growth about same as control.

TABLE 70.—*Effect of varying percentages of saccharin upon gas and acid production in dextrose bouillon.*

	Proteus vulgaris.					Proteus vulgaris II.				
Saccharin (per cent)	0.0	0.095	0.18	0.26	0.30	0.0	0.095	0.18	0.26	0.30
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Reaction of medium	−0.65	−0.50	−0.65	−0.55	−0.45	−0.65	−0.50	−0.65	−0.55	−0.45
Gas produced in—										
24 hours	0	0	6.0	10.0	11.0	21.0	19.0	17.0	20.0	15.0
48 hours	0	0	10.0	11.0	13.0	20.0	18.0	19.0	17.0	14.0
96 hours	0	0	13.0	12.0	15.0	18.0	17.0	20.0	18.0	14.0
Reaction of bulb	−4.0	−3.3	−3.3	−3.1	−3.0	−4.6	−3.9	−3.5	−3.3	−3.0
Reaction of branch	−3.8	−3.2	−3.1	−2.8	−2.8	−4.0	Lost.	−3.3	−3.1	−2.8

	Bacillus cloacæ.					Bacillus paratyphosus B (Schottmueller).				
Saccharin (per cent)	0.0	0.095	0.18	0.26	0.30	0.0	0.095	0.18	0.26	0.30
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Reaction of medium	−0.65	−0.50	−0.65	−0.55	−0.45	−0.65	−0.50	−0.65	−0.55	−0.45
Gas produced in—										
24 hours	60.0	30.0	16.0	11.0	11.0	33.0	30.0	22.0	21.0	20.0
48 hours	76.0	30.0	20.0	11.0	30.0	28.0	28.0	21.0	23.0	21.0
96 hours	88.0	28.0	20.0	10.0	36.0	27.0	26.0	20.0	22.0	20.0
Reaction of bulb	−.7(?)	−4.0	−3.8	−3.5	−3.2	−4.5	−4.0	−3.3	−3.3	−2.8
Reaction of branch	Lost.	−3.5	−3.0	−3.2	−2.6	−4.3	−3.5	Lost.	−2.6	−2.6

TABLE 71.—*Effect of varying amounts of saccharin (neutralized) on growth of Proteus vulgaris in dextrose bouillon.*

[Saccharin added before sterilization. Medium in Smith's tubes.]

Saccharin.	Gas in 8 days.	Reaction.	
		Bulb.	Branch.
Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
0.0	0	3.0	2.1
.1	10	2.4	1.8
.2	11	2.0	1.6
.3	0	2.1	1.65
.4	5	2.1	1.6

No apparent difference in growth in any of tubes.

TABLE 72.—*Data on the preparation of dextrose bouillon containing varying amounts of saccharin.*

[Saccharin neutralized by NaOH and all tubes brought to same reaction as that containing 0.3 per cent saccharin.]

Original solution.		Made 0.5 per cent acid.			Made 2 per cent acid.		
Per cent of saccharin.	Reaction.	Cubic centimeters of solution.	Cubic centimeters of N/4 NH_3 added.	Final reaction.	Cubic centimeters of solution.	Cubic centimeters of N/4 HCl added.	Final reaction.
0.0	−0.5	45	0.0	−0.5	50	3.0	−1.7
.1	−1.0	37	0.75	−0.8	50	2.0	−1.9
.2	−1.5	38	1.5	−1.2	50	1.0	−2.0
.3	−2.0	50	3.0	−1.8	40	.0	−2.0

TABLE 72.—*Data on the preparation of dextrose bouillon containing varying amounts of saccharin*—Continued.

REACTION BROUGHT BACK TO THAT OF THE CONTROL.

Original medium.				Adjusted medium.	
Per cent of saccharin.	Reaction.	Cubic centimeters of solution.	Cubic centimeters of N/10 NaOH added.	Final saccharin.	Final reaction.
				Per cent.	
0.0	−0.4	95.0	0.0	0.0	−0.65
.1	− .9	9.5	5.0	.095	− .50
.2	−1.4	95.0	10.0	.18	− .65
.3	−2.0	95.0	15.0	.26	− .55
.36	−2.4	100.0	20.0	.30	− .45

OBSERVATIONS UPON THE FATE AND EFFECT OF SACCHARIN WHEN ADMINISTERED TO RABBITS.

Experiments were performed on rabbits to ascertain the distribution of saccharin in various organs, to learn the lethal dose of saccharin, and to test the question whether saccharin is resecreted into the intestine.

DISTRIBUTION OF SACCHARIN IN THE VARIOUS ORGANS.

Three experiments were performed upon rabbits to ascertain the distribution of saccharin in the various organs after the administration of saccharin by stomach and intravenous injection. The rabbits employed had fasted two days immediately preceding the experiment. The saccharin solution was prepared by dissolving 1 part of saccharin in 6 parts of water containing 0.5 part of sodium bicarbonate for administration by stomach. The solution used for injection was similarly prepared, but of 10 per cent strength, and was infused into the femoral vein at the rate of 10 c. c. or 1 gram of saccharin per minute.

The first rabbit received 5 grams of saccharin by stomach, and 24 hours afterwards was killed by bleeding. The various organs, after freeing as much as possible from the adhering blood by wrapping with filter paper, were taken for the estimation of saccharin. The second rabbit likewise received 5 grams of saccharin, but was killed by bleeding one and one-quarter hours after the administration of the saccharin, and the organs similarly treated. The third rabbit received 2 grams of saccharin intravenously and was killed by bleeding 20 minutes after the close of the injection. The saccharin was estimated in the various organs by a method essentially similar to that employed in the estimation of saccharin in feces.

TABLE 73.—*Distribution of saccharin in the organs of rabbits.*

Name of organ.	Rabbit I. (Weight, 1,750 grams. Administration of saccharin by stomach: 5 grams of saccharin in 16⅔ per cent solution introduced into the stomach by means of stomach tube. Killed by bleeding 24 hours after the administration of saccharin.)			Rabbit II. (Weight, 1,880 grams. Administration of saccharin by stomach: 5 grams of saccharin in 16⅔ per cent solution introduced into the stomach by means of stomach tube. Killed by bleeding 1¼ hours after administration of saccharin.)			Rabbit III. (Weight, 1,900 grams. Administration of saccharin by intravenous injection: 2 grams of saccharin in 10 per cent solution infused into the femoral vein at the rate of 1 gram per minute. Killed by bleeding 20 minutes after close of injection.)		
	Weight of organ.	Saccharin in organ.		Weight of organ.	Saccharin in organ.		Weight of organ.	Saccharin in organ.	
	Grams.	*Gram.*	*Per ct.*	*Grams.*	*Gram.*	*Per ct.*	*Grams.*	*Gram.*	*Per ct.*
Brain	4.9	Negative		6.4	Slightest trace.		6.7	0.0051	0.075
Kidney	8.5	0.0087	0.10	10.0	0.004	0.04	10	.0228	.228
Liver	58.2	.0044	.0075	57.5	.0023	.004	54.9	.0533	.097
Lungs	8.0	.0009	.011	6.5	.00032	.0049	7.2	.0044	.064
Muscle, heart	3.1	Negative		4.1	.00031	.0078	3.3	.0035	.105
Muscle, red		Slightest trace.			Not estimated.			Not estimated.	
Muscle, white		do				.0017			.035
Spleen	1.0	Negative		.6	Negative		1.0	.00064	.064
Suprarenal	.95	do		.4	do		0.3	Slightest trace.	
Bile		do							.07
Blood			.013			.009			1.34
Urine		Very abundant.			Very abundant.			Present	

No attempt was made to account for all the saccharin administered, and therefore the urine and feces were not collected quantitatively nor their saccharin content estimated. The saccharin, however, was so abundant in the urines of rabbits I and II that it separated out spontaneously in the urine. The amount of material to work upon in the case of many of the organs was so slight, and their saccharin content so slight, that the results recorded in these instances can scarcely be more than approximate. It is felt, however, that the results are sufficiently accurate to enable one to draw conclusions.

The distribution of saccharin in the various organs would naturally vary according to the time the animal was killed after the administration of the saccharin, as well as to the method of administration; hence the results obtained from the various animals are not strictly comparable. The data recorded in the table indicate to a certain extent the rapidity with which the saccharin is eliminated. In the case of rabbits I and II most of the saccharin had been eliminated at the time of killing. In the case of rabbit II, for instance, which was killed one and one-quarter hours after receiving 5 grams of saccharin, there was found but a small fraction of a gram of saccharin in the various organs and but 0.009 per cent in the blood. The rabbit killed 20 minutes after the saccharin injection showed more saccharin in the kidney and a high percentage still in the blood, though there was at that time a considerable amount already in the urine.

Perhaps the most interesting data are those in connection with the brain. By inspection of the table it is seen that there was no saccharin found in the brain of rabbit I and but the slightest trace in the brain of rabbit II, and only 0.0051 gram in the brain of rabbit III. Naturally the saccharin was found in greatest abundance of any of the organs in the excretory organ—the kidney. The saccharin found in the livers of rabbits I and II was very slight, less than 5 mgs. In the rabbit which received the intravenous injection of 2 grams of saccharin and was killed 20 minutes after the close of the injection, the amount of saccharin found in the liver was over 50 mgs. There was only a slight trace of saccharin found in the muscle of the first rabbit and scarcely more than a trace found in the muscle of the second rabbit killed after one and one-quarter hours. In the third rabbit, however, the amount in the muscle at the time of killing was not inconsiderable, being about the same in percentage as that found in the liver. A small portion of the saccharin found in these organs may probably be attributed to the slight amount of blood unavoidably adhering to the organs when taken for analysis. The lungs showed the presence of some saccharin in the case of each rabbit and the spleen in the case of one rabbit, while the suprarenals showed but the slightest trace of saccharin in one instance. The amount of spleen and suprarenal available for analysis was too small, however, to render reliable results.

There was 0.013 per cent of saccharin found in the blood of rabbit I and 0.009 per cent in the blood of rabbit II. In rabbit III, which received the saccharin intravenously, there was found, 20 minutes after the close of the injection, 1.34 per cent of saccharin in the blood.

THE LETHAL DOSE OF SACCHARIN.

Three rabbits were employed for the experiment. The saccharin solution was prepared by dissolving 1 part of saccharin in 6 parts of water containing 0.5 part of sodium bicarbonate and was administered by stomach tube. In the case of rabbits II and III, the saccharin was given after longer or shorter periods of fasting and was therefore received into the stomach for the most part probably unmixed with food.

From the results of the experiment recorded in Table 74 it will be seen that the rabbits died only after receiving 20 grams of saccharin. During the period of smaller dosage, even up to 10 grams, the rabbits appeared to have no symptoms.

TABLE 74.—*Lethal dose of saccharin as applied to rabbits.*

RABBIT I. (WEIGHT, 2,350 GRAMS.)

Date.	Amount of saccharin introduced into the stomach.	Remarks.
1910	*Grams.*	
Apr. 22	2	No apparent symptoms.
23	4	Do.
26	8	Do.
27	10	Do.
30	20	Died during the night.

Autopsy.—Stomach full of food partly digested; wall congested in spots. Intestines full of watery fluid; no apparent change. Liver normal or possibly slightly congested. Spleen dark and congested; normal size. Left kidney black and small; cortical congested. Right kidney black and congested. Adrenals pale.

RABBIT II. (WEIGHT, 2,060 GRAMS.)

Date.	Amount of saccharin introduced into the stomach.	Remarks.
1910	*Grams.*	
Apr. 25	6	No apparent symptoms.
27	6	Saccharin introduced into an empty stomach; animal fed 1 hour later; no apparent symptoms.
28	10	Animal had fasted 24 hours; fed 2¾ hours after saccharin; no apparent symptoms.
30	20	Animal had fasted 22 hours; died 2 hours after saccharin.

Autopsy.—Stomach full of watery fluid; congested in places. Intestines full of watery fluid, small intestine slightly congested; cæcum very slightly congested; blood vessels dilated. Liver slightly congested. Kidneys: Cortex slightly congested. Adrenals very pale. Spleen normal.

RABBIT III. (WEIGHT, 2,110 GRAMS.)

Date.	Amount of saccharin introduced into the stomach.	Remarks.
1910	*Grams.*	
May 1	20	Animal had fasted 24 hours; died 2 hours after receiving the saccharin.

Autopsy.—Stomach much congested. Intestines: Small intestine slightly congested; large intestine distended with watery fluid and gas; slightly congested. Liver slightly congested. Spleen dark and slightly congested. Kidneys appear normal. Lungs normal. Adrenals pale.

THE RESECRETION OF SACCHARIN INTO THE INTESTINE.

Experiments were made to ascertain if saccharin is resecreted into the intestine. Three rabbits were employed for the experiment. The intestine was severed a few inches below the pylorus and the cut ends ligated. Saccharin in the form of the sodium compound was then introduced into the stomach, 5 grams in the case of rabbit I, 3 grams in rabbit II, and 2 grams in rabbit III. Some food was in the stomach of each of the rabbits at the time of the operation.

Rabbit I died during the night, rabbits II and III were killed by bleeding four or five hours after the administration of the saccharin. The intestine was removed with the least possible manipulation and the utmost care was observed throughout to avoid the possibility of contamination of the intestinal contents by blood. The ends of the sections of small intestine were carefully freed from traces of adhering blood and the contents removed by passing through the gut a gentle stream of 0.85 per cent sodium chloride. The large intestine, in each case full of finely divided material, was laid open, and the inner portions which were not in contact with the intestinal wall were selected for the saccharin test. There was no evidence of the presence of blood in any of the specimens analyzed. The saccharin was tested for in the usual manner, and in each case a strong yellow color was imparted to the final fluid, indicating the presence of saccharin. The conclusion seems justifiable, therefore, that saccharin is resecreted into the intestine.

TABLE 75.—*Resecretion of saccharin into the intestine.*

[The small intestine of rabbits at a point a few inches below the pylorus was severed and the ends ligated. The rabbits then received varying amounts of saccharin in form of the sodium compound into the stomach. A few hours afterwards they were killed by bleeding (except rabbit I), and the contents of various sections of the intestine examined for saccharin.]

	Rabbit I (weight, 1,670 grams).	Rabbit II (weight, 1,510 grams).	Rabbit III (weight, 1,740 grams).
	Grams.	*Grams.*	*Grams.*
Amount of saccharin received into the stomach	5	3	2
Saccharin in intestinal contents: Ileum, cæcum, and colon	Present.	Present.	Present.

SPECIAL DISCUSSION OF THE DATA.

EFFECT ON DIGESTION.

ENZYMES IN VITRO.

An investigation of the influence of saccharin upon the action of the enzymes concerned with starch hydrolysis, present in the saliva and pancreatic secretion, shows that the inhibiting action of saccharin is no greater than that of hydrochloric acid of equal molecular concentration. There is no evidence of any specific inhibiting action of saccharin upon these enzymes.

The sodium salt of saccharin, even in much greater concentrations than that which might be employed for sweetening food, had no material influence upon the action of the enzymes of the saliva and pancreatic secretions concerned with the hydrolysis of starch.

An investigation of the influence of saccharin upon the peptic digestion of egg albumen in the presence of hydrochloric acid showed

that concentrations of saccharin such as might be employed for sweetening food had no material influence upon the activity of the peptic enzyme.

The sodium salt of saccharin even in much greater concentration than that which might be employed for the sweetening of food had no material influence upon the action of the tryptic enzyme of the pancreas upon casein or of the lipoclastic enzyme of the pancreas upon olive oil.

In no case was any evidence obtained of any specific inhibiting action upon enzymes by saccharin or by its sodium salt. Such quantities of these substances as might be employed for sweetening food are unlikely to affect the normal physiological activity of the digestive enzymes.

GASTRIC DIGESTION.

No evidences of gastric disturbance clearly referable to saccharin were noted during the period of feeding with small doses of 0.3 gram of saccharin daily, and it appears unlikely that such doses even when long continued are the occasion of clinical manifestations of disturbed gastric digestion. This is, however, by no means equivalent to a statement that such small doses are necessarily harmless in their effects on the gastric digestion of persons suffering from chronic gastritis.

In the case of larger doses of saccharin it is evident from the experiments recorded in this report that considerable doses may be taken by normal subjects over a considerable period of time without exciting clinical manifestations of disordered gastric digestion. On the other hand, there is a tendency in some instances for the free hydrochloric acid of the gastric juice to be somewhat increased. This was noticeable in the case of the subjects studied by Dr. Thacher. Even here, however, it is doubtful if the percentages of hydrochloric acid observed can be regarded as exceeding the physiological limits.

Studies of the peptic digestion of the stomach were not carried out in any of our cases. The information from such observations would have been desirable, but the technical difficulties were such as to imperil more important features of the research, and for this reason this particular line of study was not pressed in this direction.

It appears unnecessary to make further reference to the action of saccharin upon the gastric digestion in cases of disease, as the present report relates primarily to the question whether saccharin exerts a deleterious action on normal human adults. It may be mentioned, however, that one of our cases, subject III N, was a case exhibiting hypochlorhydria and that the case reported by Dr. Lyle was one of hyperchlorhydria. In neither of these cases did the presence of the gastric anomaly appear to exert any unfavorable influence upon gastric digestion.

ENTERIC DIGESTION.

It has already been pointed out that experiments upon tryptic digestion in vitro indicate that the action of saccharin has no retarding influence on such digestion so long as the saccharin is neutralized and is not allowed to act as an acid. It has also been shown in the presentation of the facts relating to the absorption of proteins and of fats that there is no deficiency in the absorption of either of these important classes of foodstuffs. Moreover, the maintenance of the weight of the subjects on a diet containing a moderate number of calories points to a good and probably unimpaired absorption of carbohydrates as well as fats and proteins. There is, however, another phase of intestinal digestion that calls for especial scrutiny. This is the extent and character of putrefaction during the various saccharin periods as compared with the preceding and after periods. In the present research the ordinary criteria of judgment of the putrefactive processes in the intestinal tract were applied through the study of the intestinal contents and of the urine. The main features in the study of the feces were the occurrence of indol and skatol and hydrogen sulphide.

Taking first the observations on indol we find that the feces show, in subject I K, a slight but distinct tendency to an increase during the saccharin periods as compared with the fore period. This same tendency is observed in subject II O and it is also observed in subject III N. This increase is slight but distinct.

Precisely the same thing is true of the skatol of the feces in two out of the three cases. In the third case (subject III N) there is perhaps a slight lessening of the skatol during the saccharin period as compared with the fore and after periods, but these differences are so slight as to have no value.

As regards hydrogen sulphide, we may say that there is here an indication of a moderate increase in the amount of gas that could be liberated through the agency of acid from the feces in the different periods. In subject I K the rise is not large, but is nevertheless unmistakable, as compared with the fore period, the after period, and the accidental period of 14 days in which no saccharin was taken. In the case of subject II O there was also a slight rise in hydrogen sulphide obtainable from the feces during the saccharin period. In the case of subject III N this rise was not noticeable, and the results for the different periods of saccharin, as well as those for the fore and after periods, remain remarkably constant. Two of the three cases, therefore, show a slight rise in hydrogen sulphide during the saccharin periods.

Turning now to the conditions observed in the urine, we have to consider first the average amount of indican in the urine per day, according to Folin's colorimetric test; secondly, the average amount

of ethereal sulphur per day; and, lastly, the behavior of the aromatic oxyacids and indolacetic acid in the urine.

As regards subject I K, we find that the amount of indican in the urine is at all times small and that this substance is frequently not detectable. Even at the time when relatively large amounts of saccharin were given (1 gram daily for 23 days), the amount of indican was very small. In the highest saccharin period (1.5 grams daily), the average amount was the same as that observed in the fore period. There is therefore in this case only slight indication of any effect of saccharin upon the indican.

In subject II O the conditions are different. A moderate amount of indican was present during the fore period, and this amount was not increased during the low saccharin period or even during the period of 23 days during which 1 gram per day was given. But during the 45 days in which 1.5 grams were taken daily there was a very distinct rise in the amount of indican, and this rise is at least in a measure maintained during the after period of 14 days. The quantities of indican dealt with in this case are at no time actually large, but the relative increase is so considerable during the high saccharin period that it becomes a noteworthy feature.

Exactly the same thing holds true in subject III N, who shows a very marked and persistent rise during the 42 days of the high saccharin period. In this case, however, the rise is followed by a fall in the after period.

We may, therefore, state that in two of our three cases there was a marked rise in the indican of the urine during the highest saccharin period. As there was nothing about the food or any ascertainable special conditions of the patients to account for any such rise in the indican of the urine, we are strongly disposed to bring it into relation with the increase in the saccharin taken, since this is the only factor in the experiment that was definitely and consistently varied.

If we look at the ethereal sulphur for confirmation of the rise of putrefaction shown by the rise in indican in the urine, we fail to find such confirmation in any considerable degree, since the differences in the ethereal sulphur observed in the different periods of the experiment are insignificant. It is well known that when considerable quantities of indol are administered to a subject the ethereal sulphur rises almost proportionately to the indican observed in the urine. On the other hand, it is equally well known to experienced physiological chemists that a distinct rise in the indican of the urine may occur spontaneously—that is to say, without the ingestion of indol—without being sufficient to appreciably alter either the total amount of ethereal sulphur or to disturb the ratio between the ethereal sulphur and the inorganic sulphur of the urine. The precise explanation of this is not clear to us at present.

As regards the aromatic oxyacids, we may say that there were indications of increase in these during the saccharin period and during the after period, in all three of our cases. The rise is most marked in subject II O, in which also the rise in the indican of the urine was the most pronounced. As regards indolacetic acid there is here also a slight increase in this substance during the saccharin period. This is true, however, only for subjects I K and II O. In the case of subject III N, the differences indicate a lessening of indolacetic acid during the saccharin period. The variations are so small in the indolacetic acid in the two cases where there seems a quantitative increase, that they can not be deemed of much significance.

EFFECT ON METABOLIC PROCESSES.

There is little to be said in regard to the effects of saccharin upon processes of metabolism. Our work indicates that no significant deviation in the nitrogenous metabolism is brought about through the action of saccharin even in considerable doses. The nitrogen of ammonia, the nitrogen of uric acid, the nitrogen of urea, show no evidences of appreciable disturbance in the nitrogen metabolism. The same may be said of the sulphur metabolism. It is true that the unoxidized sulphur of the urine undergoes a rise when saccharin is taken. This is readily accounted for by the fact that saccharin itself contains sulphur. If we subtract the sulphur of saccharin in the urine from the unoxidized sulphur, we find no evidence of any influence of saccharin upon the output of the unoxidized sulphur. The ethereal sulphates show no disturbance even under the influence of large doses of saccharin. This fact is somewhat noticeable in the cases where the indican was distinctly increased during the high saccharin period; but the phenomenon of a rise in indican without a closely corresponding rise in ethereal sulphates is familiar to all who have an intimate experience with the conditions of intestinal putrefaction.

SUMMARY OF RESULTS.

I. Saccharin in small doses (up to 0.3 gram daily) caused no disturbance of any kind either as ascertainable by clinical investigations or through laboratory study of digestion or metabolism by modern methods.

II. Saccharin in large doses (1 to 1.5 grams daily) was observed to be followed by certain modifications of physiological conditions. These were not of constant occurrence and were not all observed in any one subject. They were apparently caused by the use of the saccharin.

III. These departures from physiological conditions comprise the following:

(1) Serious distaste for the substance, due mainly to the persistence of a sweet taste in the mouth.

(2) An increase in the free hydrochloric acid of the gastric juice was noted in some instances under conditions which made it highly probable that the saccharin was responsible for this modification in function. Such a tendency, however, appears to be entirely absent in other instances. Such a rise as has been observed does not appear to be pathologically significant.

(3) A change in the reaction of the feces from neutral to acid was generally observed. The amount of rise in acidity could not be very accurately determined, but was small. We are disposed to connect this acidity with the acid reaction of the saccharin itself, which, as pointed out in the text, is eliminated to some extent by the intestine as well as through the urine. There is very strong experimental evidence that at least a portion of the saccharin ingested is absorbed from the gut and resecreted at a lower level.

(4) In some instances the taking of saccharin was associated with a distinct rise in the indol of the feces. The skatol in the feces appears to be somewhat increased in some instances coincidentally with the rise in indol. Similarly the hydrogen sulphide of the feces may be somewhat increased during the high saccharin period. This modification, however, while very marked in some instances, was entirely absent in others. There were indications in our subjects of an increase in the aromatic oxyacids during the high saccharin periods.

IV. In the one case of hyperchlorhydria and the one instance of hypochlorhydria in which the action of saccharin was tested there appeared to be no greater susceptibility to its action than in cases in other respects more normal.

V. An investigation of the influence of saccharin upon the action of the enzymes, concerned with starch hydrolysis, present in the saliva and pancreatic secretion, shows that the inhibiting action of saccharin is no greater than that of hydrochloric acid of equal molecular concentration. There is no evidence of any specific inhibiting action of saccharin upon these enzymes.

The sodium salt of saccharin, even in much greater concentrations than that which might be employed for sweetening food, had no material influence upon the action of the enzymes of the saliva and pancreatic secretions concerned with the hydrolysis of starch.

An investigation of the influence of saccharin upon the peptic digestion of egg albumin in the presence of hydrochloric acid showed that concentrations of saccharin such as might be employed for sweetening food had no material influence upon the activity of the peptic enzyme.

The sodium salt of saccharin, even in much greater concentrations than that which might be employed for the sweetening of food, had no material influence upon the action of the tryptic enzyme of the pancreas upon casein or of the lipoclastic enzyme of the pancreas upon olive oil.

In no case was any evidence obtained of any specific inhibiting action upon enzymes by saccharin or by its sodium salt. Such quantities of these substances as might be employed for sweetening food are unlikely to affect the normal physiological activity of the digestive enzymes.

VI. From a consideration of all the data bearing on the subject of the action of saccharin we have reached the conclusion that relatively large doses of saccharin (over 0.3 gram, and especially above 1 gram daily), if continued for considerable periods of time (months), are liable to induce disturbances of digestion. On the other hand, small doses of saccharin (0.3 gram or less) may be taken daily during long periods of time (months) by normal adults without any detriment to health ascertainable by the available methods of study.

No evidence was attainable that the addition of saccharin to the food altered the quality or strength of the food. On the other hand, it is obvious that if saccharin be added to the food with intention of replacing glucose or some other foodstuffs, this must be regarded as a substitution involving the reduction of the food value of the sweetened product, and hence as a reduction in its quality.

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment.*

Subject I K.

FORE PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine.[1]															Feces.							
				Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Weight.		Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
																			Moist.	Air dry.						
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
1	Sept. 8	61.7	0																135.0	32.4	Alkaline	Dark brown.	Well formed.	76.0	......	
2	Sept. 9	62.3	0	715	1.033	Strong..	Moderate.	8	.....	11.20	0.390	0.160	0.886	0.672	0.078	0.136	9.84	1.39	88.0	23.1	Strongly alkaline.	...do....	...do....	73.7	......	
3	Sept. 10	61.7	0																65.0	16.2	Alkaline	Brown..	...do....	75.1	0.0016	13.35
4	Sept. 11	61.7	0	941	1.029	Moderate.	Slight to moderate.	5	.....	13.10	.470	.151	.921	.736	.070	.115	11.8	1.73	184.5	42.0	...do....	Dark brown.	...do....	77.3	......	
5	Sept. 12	......	0																100.0	23.1	...do....	...do....	Hard....	76.9	......	
6	Sept. 13	61.7	0	890	1.031	Slight...	Slight...	5	.....	12.60	.500	.178	.974	.780	.073	.121	11.8	2.00	138.5	27.0	...do....	...do....	Well formed.	80.5	.0027	
7	Sept. 14	61.4	0																197.2	48.3	...do....	...do....	Hard....	75.5	.0051	
Daily av ...		61.8	.....	862	1.031	....	....	6	.....	12.41	.456	.161	.926	.730	.073	.123	11.24	1.71	129.7	30.3	....	....	....	76.6	.0031	1.91
8	Sept. 15	61.0	0	792	1.030	Strong..	Slight...	1	.....	12.70	.477	.141	.913	.741	.054	.118	8.87	1.80	58.0	12.0	Alkaline	Charcoal	Not formed.	79.3	......	
9	Sept. 16	61.4	0																86.5	21.0	...do....	...do....	Hard....	75.7	.0056	
10	Sept. 17	61.4	0																11.0	37.8	...do....	Brown..	Well formed.	76.9	......	
11	Sept. 18	61.2	0	801	1.030	....	Moderate.	20	.....	13.15	.538	.165	.922	.710	.088	.124	7.68	1.87	163.5							
12	Sept. 19	61.4	0																66.5	16.4	...do....	Dark brown.	Hard....	75.3	.0056	9.40

13	Sept. 20	61.4	0	650	1.030	Moderate.	..do....	15	.....	11.38	.568	.143	.866	.663	.078	.125	6.89	1.59	91.5	22.8	Strongly alkaline.	Brown..	...do....	75.1	......	
14	Sept. 21	61.0	0																106.5	21.6	Alkaline	...do....	Soft formed.	79.7	.0065	
	Daily av ...	61.3	.....	755	1.030	....	....	13	.....	12.52	.529	.152	.903	.705	.075	.123	7.79	1.77	83.4	18.8	....	....	....	77.5	.0059	1.34

[1] All results are based on a volume representing an average 24-hour collection.

Balance, Sept. 15–21.

		Grams.
Nitrogen in food		96.82
Nitrogen in excreta:		
Urine	87.61	
Feces	9.40	
		97.01
Nitrogen balance		—.19

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject I K—Continued.

FIRST SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution = 100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
15	Sept. 22	61.0	0.3																40.0	10.8	Alkaline	Charcoal	Hard....	73.0	......	
16	Sept. 23	61.0	.3	842	1.029	Strong..	Strong..	4	0.233	13.62	0.613	0.182	0.981	0.736	0.075	0.170	10.3	1.56	141.0	30.0	...do....	...do....	Soft formed.	78.7	0.013	
17	Sept. 24	60.7	.3																123.0	30.3	...do....	Dark brown.	Hard....	75.4	......	
18	Sept. 25	61.0	.3	723	1.034	...do....	...do....	0	.274	12.15	.465	.152	.935	.714	.070	.151	8.75	1.71	0	.....	....	....	....	.....	......	9.23
19	Sept. 26	......	.3																156.0	37.1	Alkaline	Brown..	Hard ...	76.2	.0085	
20	Sept. 27	61.0	.3	810	1.031	Moderate.	..do....	0	.267	13.30	.443	.175	.967	.718	.072	.177	9.47	1.53	78.0	19.5	...do....	...do....	...do....	75.0	......	
21	Sept. 28	61.2	.3																47.5	12.6	...do....	...do....	...do....	73.5	.002	
Daily av..		61.0	.....	782	1.032	....	....	1	.260	12.90	.501	.167	.957	.721	.072	.164	9.40	1.62	83.6	20.0	....	....	....	76.1	.0078	1.32
22	Sept. 29	61.2	.3	1,077	1.027	Slight...	Moderate.	0	.254	14.45	.528	.165	1.080	.856	.068	.156	12.5	1.61	95.0	21.9	Alkaline	Dark brown.	Hard....	77.0	......	
23	Sept. 30	61.2	.3																65.0	16.5	...do....	...do....	...do....	74.6	.0048	
24	Oct. 1	60.7	.3																90.0	19.2	...do....	...do....	...do....	78.6	......	
25	Oct. 2	61.1	.3	1,240	1.028	Slight to moderate.	Slight to moderate.	1	.293	14.75	.490	.171	1.100	.815	.073	.212	16.0	1.78	164.0	43.2	...do....	Brown..	Well formed.	73.7	......	10 7
26	Oct. 3	......	.3																65.5	18.3	...do....	...do....	Hard....	72.0	.0044	
27	Oct. 4	60.7	.3	978	1.028	Slight...	Moderate.	0	.268	16.15	.588	.215	1.114	.850	.083	.181	10.2	2.12	22.5	35.7	...do....	...do....	...do....	72.0	......	
28	Oct. 5	60.6	.3																127.5							
	Oct. 6	......	......	......	.....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	101.0	24.0	...do....	...do....	...do....	72.0	......	
Daily av...		60.9	.....	1,119	1.028	....	....	0	.275	15.06	.529	.182	1.098	.837	.074	.187	13.3	1.83	91.3	22.3	....	....	....	75.6	.0046	1.53

29	Oct. 6	61.1	.3	1,075	1.022	Slight...	Slight...	0	.233	12.95	.510	.170	.966	.738	.079	.149	9.36	1.90	48.0	12.9	Alkaline	Charcoal	Hard....	73.1	.0022	6.80
30	Oct. 7	60.3	.3																							
31	Oct. 8	61.1	.3																43.0	13.2	...do....	...do....	...do....	69.3	......	
32	Oct. 9	60.5	.3	813	1.031	Very slight.	..do....	2	.293	14.13	.535	.191	1.045	.845	.050	.150	8.62	2.08	0	.....	....	....	....	....		
33	Oct. 10	......	.3																149.0	39.3	Alkaline	Dark brown.	Hard....	73.6	.0143	
34	Oct. 11	60.6	.3	810	1.033	Slight...	Moderate.	1	.259	13.78	.500	.190	.984	.768	.077	.139	10.0	1.74	57.5	13.8	...do....	Brown..	...do....	76.0	......	
35	Oct. 12	61.0	.3																92.5	21.9	...do....	Light brown.	...do....	76.3	......	
	Oct. 13	......	.....	....		....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56.5	15.9	...do....	Brown..	...do....	71.8	......	
	Daily av ...	60.8	.....	887	1.029	....	....	1	.266	13.69	.518	.185	1.005	.792	.066	.147	9.23	1.93	63.8	16.7	....	....	....	73.8	.0083	.97

BALANCE, OCT. 6-12.

		Grams.
Nitrogen in food		100.21
Nitrogen in excreta:		
Urine	95.85	
Feces	6.80	
		102.65
Nitrogen balance		—2.44

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject I K—Continued.

SECOND SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c.c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
36	Oct. 13	61.2	0.5	1,318	1.021	Moderate.	Slight...	0	0.426	15.15	0.630	0.181	1.135	0.885	0.075	0.175	11.3	2.08	......	......	......	......	......	......	......	9.48
37	Oct. 14	61.0	.5																278.0	43.8	Alkaline	Charcoal	Well formed.	84.2	0.015	
38	Oct. 15	61.1	.5	1,023	1.028	...do.....	Moderate.	0	.450	13.40	.490	.205	1.090	.813	.084	.193	10.7	1.62	77.0	19.2	Slightly alkaline.	...do.....	Hard....	75.0	......	
39	Oct. 16	61.2	.5																0	......	......	......	......	......	......	
40	Oct. 17	......	.5																197.0	46.5	Alkaline	Dark brown.	Hard....	76.4	.014	
41	Oct. 18	61.4	.5	1,215	1.025	...do.....	Moderate to strong.	0	.500	16.10	.580	.205	1.175	.885	.100	.190	12.2	2.10	79.0	18.0	...do.....	Brown..	Well formed.	77.2	......	
42	Oct. 19	61.4	.5																125.0	81.5	...do.....	...do.....	Hard....	74.8	......	
Daily av....		61.2	.....	1,162	1.025	....	....	0	.457	14.67	.556	.198	1.127	.854	.086	.186	11.3	1.89	126.0	26.5	....	....	....	79.0	.015	1.35
43	Oct. 20	61.4	.5	1,155	1.023	Slight...	Slight to moderate.	0	.445	13.95	.500	.168	1.032	.835	.076	.121	10.4	1.83	62.5	15.9	Alkaline	Brown..	Hard....	74.5	......	11.78
44	Oct. 21	61.2	.5																128.5	27.9	...do.....	Dark brown.	...do.....	78.3	.0115	
45	Oct. 22	61.2	.5	1,092	1.027	...do.....	Strong..	0	.467	14.10	.520	.200	1.058	.775	.068	.215	11.1	1.73	169.5	31.2	...do.....	...do.....	Well formed.	81.6	......	
46	Oct. 23	61.3	.5																0	......	......	......	......	......	......	
47	Oct. 24	......	.5																163.5	39.1	Alkaline	Dark brown.	Hard....	76.1	.0080	

48	Oct. 25	61.9	.5	1,188	1.023	Strong..	...do....	0	.473	13.70	.500	.164	1.063	.785	.102	.176	12.1	1.41	142.5	27.0	...do.....	Light brown.	Well formed.	81.1	......	
49	Oct. 26	61.8	.5																47.5	14.1	...do.....	Dark brown.	Hard....	70.3	......	
	Oct. 27	......	.....	.....	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72.0	20.7	...do.....	Brown..	...do.....	71.2	......	
Daily av....		61.5	.....	1,137	1.025	....	....	0	.462	13.94	.509	.181	1.052	.795	.080	.177	11.2	1.67	98.3	22.0	....	....	....	77.6	.0098	1.68
50	Oct. 27	61.4	.5	975	1.029	Strong..	Strong..	0	.467	15.35	.630	.168	1.209	.885	.125	.199	10.5	2.22	.....	.....	....	....	....	.....	......	13.8
51	Oct. 28	61.4	.5																215.0	50.4	Alkaline	Charcoal	Hard....	76.6	.011	
52	Oct. 29	61.9	.5	1,340	1.025	Slight...	Moderate to strong.	0	.394	13.85	.550	.202	1.108	.788	.122	.198	16.9	1.89	100.0	25.5	...do.....	Dark brown.	...do.....	74.5	......	
53	Oct. 30	62.4	.5																88.5	26.1	...do.....	...do.....	...do.....	70.5	......	
54	Oct. 31	......	.5																199.0	45.3	...do.....	...do.....	...do.....	77.3	.0042	
55	Nov. 1	62.2	.5	1,075	1.028	Strong..	Moderate.	0	.416	12.25	.558	.194	.963	.703	.093	.167	17.2	1.73	38.5	10.5	...do.....	...do.....	...do.....	72.7	......	
56	Nov. 2	62.6	.5																159.5	43.2	...do.....	...do.....	...do.....	72.9	......	
	Nov. 3	......	.....	.....	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85.5	20.7	...do.....	...do.....	...do.....	75.6	......	
Daily av....		62.0	.....	1,160	1.027	....	....	0	.421	13.82	.575	.190	1.095	.791	.115	.189	15.2	1.94	126.6	31.7	....	....	....	75.0	.0076	1.97

BALANCE, OCT. 27–NOV. 2.

		Grams.
Nitrogen in food		122.15
Nitrogen in excreta:		
Urine	96.75	
Feces	13.80	
		110.55
Nitrogen balance		+11.60

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject I K—Continued.

THIRD SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Urine. Specific gravity.	Urine. Aromatic oxy-acids.	Urine. Indolacetic acid.	Urine. Indican (Fehling's solution=100).	Urine. Saccharin.	Urine. Total nitrogen.	Urine. Ammonia nitrogen.	Urine. Uric acid nitrogen.	Urine. Total sulphur.	Urine. Inorganic sulphur.	Urine. Ethereal sulphur.	Urine. Neutral sulphur.	Urine. Chlorine as NaCl.	Urine. Total acidity as oxalic acid.	Feces. Weight. Moist.	Feces. Weight. Air dry.	Feces. Reaction.	Feces. Color.	Feces. Consistence.	Feces. Water.	Feces. Hydrogen sulphide.	Feces. Total nitrogen.
	1909.	Kilos.	Gm.	c. c.					Gm.	Gms.	Gm.	Gm.	Gms.	Gm.	Gm.	Gm.	Gms.	Gms.	Gms.	Gms.				P.c.	Gm.	Gms.
57	Nov. 3	62.0	0.75	1,200	1.029	Strong..	Strong..	0	0.645	14.27	0.572	0.219	1.289	0.935	0.099	0.255	19.0	1.77								
58	Nov. 4	62.1	.75																210.5	44.1	Alkaline	Charcoal	Hard....	79.0	0.011	
59	Nov. 5	62.2	.75																145.5	34.2	...do.....	Brown..	Well formed.	76.5		
60	Nov. 6	62.0	.75	1,000	1.030	...do.....	Moderate.	0	.715	14.91	.662	.219	1.233	.915	.093	.225	11.7	2.03								
61	Nov. 7		.75																69.5	21.3	Alkaline	Dark brown.	Hard....	69.4	.005	12.92
62	Nov. 8	62.0	.75	1,087	1.027	Moderate.	Slight to moderate.	0	.695	16.42	.684	.161	1.284	.944	.087	.253	11.3	2.07	135.0	32.4	...do.....	...do.....	...do.....	76.0		
63	Nov. 9	62.2	.75																195.0	39.0	Slightly acid.	Light brown.	Little formed.	80.0		
	Nov. 10																		187.5	37.2	Strongly acid.	Brown..	...do.....	80.2		
Daily av....		62.1		1,082	1.029			0	.689	15.16	.643	.202	1.264	.929	.093	.242	13.7	1.97	134.7	29.7				77.9	.008	1.85
64	Nov. 10	62.2	.75	1,245	1.024	Slight...	Slight...	0	.661	15.14	.784	.202	1.210	.891	.093	.226	14.5	2.30								
65	Nov. 11	62.3	.75																132.5	33.6	Slightly acid.	Brown..	Well formed.	74.7	.010	
66	Nov. 12	62.0	.75																40.0	10.2	...do.....	...do.....	Hard....	74.8		
67	Nov. 13	61.7	.75	880	1.032	Strong..	Moderate.	0	.750	14.31	.660	.225	1.220	.850	.090	.280	8.6	1.98	0							7.72
68	Nov. 14		.75																156.0	37.8	Alkaline	Dark brown.	Hard....	75.8	.011	
	Nov. 15																		282.0	60.9	Strongly acid.	Brown..	Well formed.	78.4		
Daily av....		62.1		1,026	1.029			0	.714	14.64	.710	.216	1.216	.866	.091	.259	10.8	2.11	122.1	28.5				76.7	.011	1.54

69	Nov. 15	62.3	0	940	1.028	Slight...	Moderate.	1	.078	11.85	.395	.197	.874	.660	.076	.138	11.7	1.27	......	......						9.54
70	Nov. 16	62.9	0																167.0	37.8	Slightly acid.	Light brown.	Well formed.	77.4	......	
71	Nov. 17	62.6	0	1,138	1.026	Moderate to strong.	Slight to moderate.	0	0	12.04	.287	.174	1.017	.815	.061	.141	14.0	.92	48.5	11.7	Alkaline	Dark brown.	Hard....	75.8	......	
72	Nov. 18	62.0	0																73.5	15.9	...do.....	...do.....	Well formed.	78.4	.0047	
73	Nov. 19	62.4	0	1,000	1.031	Strong..	Moderate.	0	0	12.46	.420	.177	.995	.782	.095	.118	14.2	1.53	76.5	21.6	...do.....	...do.....	Hard....	71.8	......	
74	Nov. 20	62.6	0																111.5	28.2	Slightly acid.	...do.....	...do.....	74.7	......	
75	Nov. 21	......	0																0	......						
	Nov. 22	......	......	......		......	......	......	......	......	......	......	......	......	......	......	......	......	135.5	35.1	Neutral.	Dark brown.	Hard....	74.1	.015	
Daily av....		62.5	.....	1,022	1.029	....	....	0	.....	12.17	.375	.182	.967	.757	.080	.130	13.4	1.28	87.5	21.5	....	....	....	75.4	.0099	1.36
76	Nov. 22	62.5	0	1,153	1.026	Strong..	Moderate to strong.	7	0	13.29	.533	.208	.972	.759	.089	.124	9.5	1.83	......	......						5.31
77	Nov. 23	62.3	0																107.5	27.6	Slightly acid.	Dark brown.	Hard....	74.3	......	
78	Nov. 24	62.3	0	1,130	1.026	Moderate to strong.	..do.....	5	0	16.15	.601	.212	1.155	.931	.094	.130	14.0	2.20	0	......						
79	Nov. 25	......	0																194.5	50.1	Slightly acid.	Dark brown.	Hard....	74.3	.019	
80	Nov. 26	62.0	0	966	1.026	Strong..	Strong..	1	.....	12.70	.460	.189	.944	.691	.075	.178	7.5	1.62	Not collected.							1.94
81	Nov. 27	61.2	0																Not collected.							
82	Nov. 28	......	0																58.5	11.7	Acid....	..do	Well formed.	80.0	.0068	
	Nov. 29	......	......	......		......	......	......	......	......	......	......	......	......	......	......	......	......	69.0	18.3	...do.....	Brown..	Hard....	73.5	......	
Daily av....		62.1	.....	1,066	1.026	....	....	4	0	13.85	.521	.201	1.012	.779	.084	.149	9.9	1.85	85.9	21.5	....	....	....	75.0	.0129	1.45

FOURTH SACCHARIN PERIOD.

	1909.																									
83	Nov. 29	62.2	1.0	1,283	1.027	Strong..	Moderate to strong.	0	0.731	15.75	0.557	0.246	1.229	0.900	0.081	0.248	14.0	1.80	......	......	....		....			2.98
84	Nov. 30	62.0	1.0																136.0	30.6	Acid	Dark brown.	Hard....	77.5	......	
	Dec. 1	......	......	......		......	......	......	......	......	......	......	......	......	......	......	......	......	48.0	15.6	Slightly acid.	...do.....	...do.....	67.5	......	
Daily av....		62.1	.....	1,283	1.027	....	....	0	.731	15.75	.557	.246	1.229	.900	.081	.248	14.0	1.80	92.0	23.1	....	....	....	75.0	......	1.49

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject I K—Continued.

FOURTH SACCHARIN PERIOD—Continued.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	Kilos.	Gms.	c. c.					Gm.	Gms.	Gm.	Gm.	Gms.	Gm.	Gm.	Gm.	Gms.	Gms.	Gms.	Gms.				P.c.	Gm.	Gms.
85	Dec. 1	61.4	1.0																.....	.....	....	....	....	....	.....	
86	Dec. 2	61.4	1.0	710	1.036	Strong..	Moderate to trong.	2	0.940	14.40	0.586	0.214	1.242	0.910	0.066	0.266	6.8	1.96	97.0	24.3	Slightly acid.	Charcoal	Hard....	75.0	0.013	
87	Dec. 3	61.8	1.0																52.0	13.8	Neutral.	Dark brown.	...do.....	73.5	......	
88	Dec. 4	62.0	1.0	820	1.032	...do.....	Slight to moderate.	0	.925	13.00	.620	.194	1.038	.730	.075	.233	9.8	1.83	0	.....	....	....	....	....	.....	
89	Dec. 5	......	1.0																182.0	42.9	Slightly alkaline.	Dark brown.	Hard....	76.4	.016	8.45
90	Dec. 6	62.0	1.0																48.0	13.2	...do.....	..do.....	..do.....	72.6	.....	
91	Dec. 7	62.4	1.0	898	1.030	...do.....	...do.....	0	.975	13.00	.460	.152	1.060	.742	.077	.241	11.0	1.70	74.5	15.3	...do.....	Brown..	Well formed.	78.4	.....	
	Dec. 8	.....	.....	.....	.....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	113.5	26.4	Slightly acid.	...do.....	Hard....	76.7	.....	
Daily av....		61.8	..	811	1.033	....	....	1	.944	13.40	.565	.188	1.103	.785	.073	.245	9.3	1.83	81.0	19.4	....	....	....	76.0	.015	1.21
92	Dec. 8	62.4	1.0																.....	.....	....	....	....	....	.....	
93	Dec. 9	62.3	1.0	1,320	1.024	Moderate to strong.	Moderate.	1	1.000	14.93	.536	.196	1.270	.893	.083	.294	14.2	1.59	159.0	33.3	Slightly alkaline.	Charcoal	Hard....	79.0	.0094	
94	Dec. 10	61.9	1.0																54.5	14.1	Slightly acid.	Dark brown.	...do....	74.2	....	
95	Dec. 11	62.4	1.0	1,343	1.028	Strong..	Moderate to strong.	0	.989	17.53	.733	.226	1.404	1.003	.108	.293	13.7	2.56	68.0	17.7	..do....	..do....	..do....	74.1		
96	Dec. 12	......	1.0																198.5	45.3	Acid....	Brown..	Well formed.	77.2	.020	11.72

97	Dec. 13	62.8	1.0																128.0	32.4	Slightly acid.	...do....	Hard....	74.7	......	
98	Dec. 14	62.6	1.0	1,000	1.027	...do....	...do....	0	.964	14.00	.553	.225	1.165	.834	.080	.251	5.8	1.42	91.0	22.8	...do....	Dark brown.	...do....	74.8	....	
	Dec. 15	......	....	......	....	....	....	....	......	.....	.....	......	......	....	....	.....	.....	.....	123.5	30.0	Neutral.	...do....	...do....	75.7	.....	
Daily av....		62.4	....	1,238	1.027	....	....	0	.985	15.78	.625	.217	1.297	.923	.093	.281	11.6	1.96	117.5	27.9	....	....	....	76.3	.0147	1.67
99	Dec. 15	62.7	1.0	1,355	1.022	Moderate to strong.	Slight to moderate.	6	.985	12.33	.456	.191	1.098	.659	.073	.366	13.0	1.20	....	.....	....	....	....	....	......	
100	Dec. 16	62.6	1.0																0	.....	....	....	....	....	......	
101	Dec. 17	......	1.0																117.0	23.7	Strongly acid.	Brown..	Well formed.	79.7	......	
102	Dec. 18	......	1.0	1,050	1.026	Strong..	Moderate	0	.934	13.85	.442	.236	1.303	.851	.085	.367	7.8	1.21	143.0	30.6	Slightly acid.	Dark brown.	Hard....	78.6	......	7.38
103	Dec. 19	......	1.0																56.5	15.0	...do....	...do....	...do....	74.2	......	
104	Dec. 20	61.9	1.0	858	1.034	...do....	...do....	10	.990	13.90	.422	.222	1.208	.833	.067	.308	10.3	1.67	97.5	23.4	...do....	...do....	...do....	75.9	......	
105	Dec. 21	62.7	1.0																80.0	16.8	Neutral.	...do....	...do....	79.0	......	
	Dec. 22	......	....	......	.....	....	....	....	......	......	......	......	......	......	......	......	.....	.....	36.5	10.5	Slightly acid.	...do....	...do....	71.2	......	
Daily av....		62.5	.....	1,082	1.027	....	....	5	.965	13.43	.440	.219	1.217	.791	.076	.350	10.0	1.34	75.8	17.2	....	....	....	77.3	......	1.05

BALANCE, DEC. 1-7.

		Grams.
Nitrogen in food		105.48
Nitrogen in excreta:		
Urine	93.80	
Feces	8.45	
		102.25
Nitrogen balance		+3.23

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject I K—Continued.

FIFTH SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gms.*	*c. c.*					*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
106	Dec. 22	62.2	1.5	923	1.031	Moderate to strong.	Moderate to strong.	20	1.490	12.68	0.512	0.238	1.197	0.767	0.079	0.351	10.5	2.12	......	......	......	......	......	......	......	
107	Dec. 23	62.2	1.5																123.0	29.1	Acid....	Charcoal	Hard....	76.4	0.020	
108	Dec. 24	62.5	1.5	1,017	1.032	...do.....	...do.....	1	1.360	14.28	.604	.201	1.273	.842	.085	.346	12.2	1.98	135.5	29.7	...do.....	Dark brown.	...do.....	77.4	......	
109	Dec. 25	......	1.5																0	......	......	......	......	......	......	9.84
110	Dec. 26	62.3	1.5																152.5	42.9	Acid....	Dark brown.	Hard....	71.9	.020	
111	Dec. 27	62.6	1.5	1,043	1.031	Strong..	...do.....	10	1.345	15.56	.613	.233	1.342	.860	.079	.403	12.9	1.84	74.5	23.7	Slightly acid.	...do.....	...do.....	68.2	......	
112	Dec. 28	63.2	1.5																94.0	28.1	Acid....	...do.....	...do.....	70.1	......	
	Dec. 29	......	....	......	......	......	......	...	......	......	......	......	......	......	......	......	......	......	0	......	......	......	......	......	......	
	Dec. 30	......	....	......	......	......	......	...	......	......	......	......	......	......	......	......	......	......	66.0	19.2	Acid....	Dark brown.	Hard....	70.8	.004	
Daily av ...		62.5	....	998	1.031	....	....	9	1.393	14.19	.580	.221	1.271	.826	.081	.364	11.9	1.98	80.7	21.6	....	....	....	73.2	.015	1.41

BALANCE, DEC. 22-28.

		Grams.
Nitrogen in food		126.46
Nitrogen in excreta:		
Urine	99.32	
Feces	9.84	
		109.16
Nitrogen balance		+17.30

AFTER PERIOD.

113	Dec. 29	62.5	0	1,065	1.032	Strong..	Strong..	10	0.062	17.55	0.507	0.252	1.231	0.960	0.091	0.180	12.4	1.33	.....	.....	....	....	....	...	......	10.83
114	Dec. 30	62.8	0																.....	.....	....	....	....	...	......	
115	Dec. 31	63.5	0	1,027	1.030	Very strong.	Moderate to strong.	3	Tr.	13.95	.604	.190	1.019	.737	.118	.164	13.8	1.83	152.0	40.5	Slightly acid.	Charcoal	Hard....	73.3	......	
	1910.																									
116	Jan. 1	......	0																129.5	31.8	...do.....	Dark brown.	Well formed.	75.5	......	
117	Jan. 2	......	0																76.5	21.6	...do.....	...do.....	...do.....	71.2	0.0085	
118	Jan. 3	63.2	0	963	1.034	Moderate to strong.	Slight to moderate.	2	0	15.35	.492	.249	1.111	.877	.083	.151	12.5	1.89	83.5	27.3	Neutral.	...do.....	Hard....	67.2	......	
119	Jan. 4	63.0	0																90.5	30.9	Acid....	...do.....	...do.....	65.8	......	
120	Jan. 5	63.0	0	788	1.032	...do.....	Moderate.	1	0	13.13	.392	.196	.898	.696	.086	.116	9.30	1.05	48.5	15.3	...do.....	...do.....	...do.....	68.4	......	
121	Jan. 6	63.3	0																0	.....	....	....	....	...	......	
122	Jan. 7	63.0	0	856	1.025	...do.....	Slight...	0	.....	10.26	.359	.148	.785	.595	.080	.110	8.92	1.35	108.5	32.1	Slightly acid.	Dark brown.	Hard....	70.5	.0087	1.08
Daily av....		63.0	.....	957	1.031	....	....	4	.006	14.42	.495	.211	1.032	.787	.095	.150	11.8	1.54	86.1	24.9	....	....	....	71.1	.0086	.....
123	Jan. 8	63.3	0	1,028	1.030	Strong..	Slight to moderate.	0	.....	14.28	.461	.188	1.068	.815	.081	.172	12.5	1.24	0 116.5	.... 32.4	Slightly alkaline.	Charcoal	Hard....	72.2	.012	10.0
124	Jan. 9	63.0	0																							
125	Jan. 10	62.8	0	678	1.033	Moderate to strong.	...do.....	0	.....	12.53	.461	.185	.994	.765	.087	.142	5.83	1.59	40.0	12.3	...do.....	Dark brown.	...do.....	69.2	......	
126	Jan. 11	62.5	0																118.0	29.4	Neutral.	...do.....	...do.....	75.1	......	
127	Jan. 12	62.4	0	1,108	1.029	Moderate.	Slight...	0	.....	13.75	.497	.219	.961	.752	.082	.127	15.2	1.75	45.5	13.2	...do.....	...do.....	...do.....	71.0	......	
128	Jan. 13	63.0	0																131.5	38.1	Acid....	...do.....	...do.....	71.1	.011	
129	Jan. 14	63.4	0																0	.....	....	....	....	...	......	
	Jan. 15	......	.....	.....	.....	....	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	103.0	28.5	Neutral.	Dark brown.	Hard....	73.4	.0079	
Daily av....		62.9	.....	962	1.030	....	....	0	.....	13.55	.476	.200	1.001	.774	.083	.144	11.75	1.56	69.3	19.2	....	....	....	72.3	.010	1.43

BALANCE, JAN. 8–14.

		Grams.
Nitrogen in food		114.35
Nitrogen in excreta:		
Urine	94.87	
Feces	10.00	
		104.87
Nitrogen balance		+9.48

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject II O.

FORE PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
1	Sept. 8	68.4	0																175.0	33.9	Alkaline	Brown	Soft formed.	80.6	.....	
2	Sept. 9	68.8	0	925	1.031	Moderate	Slight	4	.....	13.95	0.700	0.149	0.985	0.780	0.066	0.139	12.4	1.81	102.0	15.0	Slightly alkaline.	Light brown.	...do....	85.3	.....	
3	Sept. 10	68.6	0																176.5	27.0	...do....	...do....	Soft.....	84.6	0.0036	
4	Sept. 11	68.6	0	1,403	1.021	Slight	...do....	10	.....	14.15	.880	.167	1.064	.825	.068	.171	12.3	1.96	220.0	34.5	Strongly acid.	Brown	...do....	84.3	.....	11.84
5	Sept. 12	......	0																221.0	27.6	...do....	...do....	...do....	87.5	.....	
6	Sept. 13	68.4	0																153.5	21.6	Slightly acid.	...do....	Very soft.	84.9	.0043	
7	Sept. 14	68.6	0	991	1.026	None....	...do....	3	.....	13.38	.820	.182	1.042	.834	.078	.130	12.0	1.82	102.0	25.2	Alkaline	...do....	Well formed.	75.3	.0116	
Daily av...		68.6	.....	1,149	1.025	....	....	6	.....	13.87	.811	.166	1.035	.815	.070	.150	12.2	1.88	164.3	26.4	....	....	....	83.9	.0065	1.69
8	Sept. 15	68.9	0																223.0	26.7	Acid....	Charcoal.	Not formed.	88.0	.....	
9	Sept. 16	69.2	0	1,075	1.027	Very slight.	Slight	1	.....	13.68	.825	.228	.934	.715	.073	.146	15.9	1.86	128.0	25.8	Alkaline	Brown	Well formed.	79.8	.0065	
10	Sept. 17	69.4	0																123.0	20.7	Slightly acid.	...do....	...do....	83.2	.....	
11	Sept. 18	69.2	0	1,433	1.023	....	Slight to moderate	20	.....	13.05	.783	.160	1.032	.761	.091	.180	17.5	2.00	130.5	31.2	Alkaline.	...do....	...do....	76.1	.....	
12	Sept. 19	......	0																229.0	39.9	Slightly alkaline.	Light brown.	Soft formed.	82.6	.0181	13.0

13	Sept. 20	69.2	0	1,035	1.030	Very slight.	Moderate	3	.....	14.40	.718	.250	1.152	.884	.072	.196	15.4	1.52	64.5	15.3	Alkaline	...do....	Well formed.	76.3	......	
14	Sept. 21	69.0	0																270.0	49.5	Strongly alkaline.	Dark brown.	...do....	81.7	.0081	
Daily av...		69.2	.....	1,217	1.026	....	....	10	.....	13.62	.776	.205	1.038	.783	.080	.175	16.4	1.82	166.9	29.9	....	....	....	82.1	.0109	18.6

BALANCE, SEPT. 15-21.

		Grams.
Nitrogen in food		119.98
Nitrogen in excreta:		
Urine	95.31	
Feces	13.00	
		108.31
Nitrogen balance		+11.67

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject H O—Continued.

FIRST SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine.															Feces.							
				Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
15	Sept. 22	68.6	0.3																159.0	21.0	Alkaline	Charcoal	Soft formed.	86.8	......	
16	Sept. 23	69.0	.3	1,350	1.026	Slight...	Moderate	6	0.233	17.50	0.785	0.269	1.210	0.926	0.089	0.195	16.2	1.99	101.5	16.8	Slightly acid.	Brown..	...do....	84.0	0.0093	
17	Sept. 24	68.6	.3																362.0	47.7	Acid....	Light brown.	Not formed.	85.8	......	
18	Sept. 25	68.4	.3	1,743	1.021	Moderate	...do....	3	.272	16.08	.768	.220	1.185	.895	.099	.191	15.9	2.29	0	.....	....	....	....	....	......	11.9
19	Sept. 26	......	.3																75.5	21.0	Alkaline	Brown..	Soft formed.	72.2	.0056	
20	Sept. 27	68.4	.3																286.0	50.1	...do....	...do....	Partly formed.	81.5	......	
21	Sept. 28	68.5	.3	1,295	1.024	...do....	...do....	20	.267	13.75	.680	.209	1.085	.806	.082	.197	15.9	1.75	238.0	29.7	Slightly acid.	...do....	Soft formed.	87.5	.0109	
Daily av...		68.6	.....	1,502	1.023	....	....	9	.260	15.82	.748	.231	1.163	.879	.091	.193	16.0	2.05	175.0	26.6	....	....	....	84.8	.0086	1.70
22	Sept. 29	68.8	.3																331.5	31.8	Acid....	Light brown.	Not formed.	90.4	......	
23	Sept. 30	.....	.3	1,550	1.024	Slight...	Slight...	1	.243	15.58	.710	.234	1.109	.851	.081	.177	20.2	1.67	103.0	16.5	Alkaline	Brown..	Well formed.	83.7	.005	
24	Oct. 1	68.9	.3																0	.....	....	....	....	....	......	
25	Oct. 2	68.5	.3																146.0	39.3	Alkaline	Dark brown.	Hard....	73.1	......	
26	Oct. 3	......	.3	1,991	1.019	...do....	...do....	1	.296	14.72	.700	.182	1.138	.847	.069	.222	17.1	1.86	92.0	26.1	...do....	...do....	...do....	71.6	.0081	12.17

27	Oct. 4	68.6	.3	1,590	1.022	Moderate	Moderate	1	.289	15.40	.735	.228	1.140	.865	.101	.174	16.5	1.97	187.0	43.5	...do....	Brown..	...do....	76.7	......	
28	Oct. 5	68.9	.3																178.0	28.8	...do....	...do....	Well formed.	83.8	......	
...	Oct. 6	......	.....	......	......	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41.5	12.0	...do....	Dark brown.	Hard....	71.1	......	
Daily av...		68.7	.....	1,750	1.021	....	....	1	.279	15.16	.713	.210	1.133	.853	.082	.198	17.8	1.84	135.5	24.7	....	....	....	81.8	.0067	1.74
29	Oct. 6	69.2	.3	1,500	1.024	Very slight.	Moderate	1	.279	14.83	.756	.175	1.128	.865	.086	.177	18.3	1.84	.....	.....	....	....	....	.....	......	9.27
30	Oct. 7	69.3	.3																290.0	42.3	Slightly alkaline.	Charcoal.	Little formed.	85.4	.018	
31	Oct. 8	69.2	.3	2,025	1.018	Negative	Slight...	1	.261	15.72	.795	.207	1.117	.902	.089	.126	17.3	2.26	193.0	30.6	Slightly acid.	Brown..	Soft formed.	84.2	......	
32	Oct. 9	69.2	.3																0	.....	....	....	....	.....	......	
33	Oct. 10	......	.3																91.0	24.9	Alkaline.	Dark brown.	Hard....	72.6	.012	
34	Oct. 11	68.0	.3	1,608	1.022	Slight...	Moderate	3	.285	16.70	.653	.272	1.145	.885	.057	.203	15.4	1.45	235.0	33.6	...do....	Brown..	Partly formed.	85.7	......	
35	Oct. 12	69.4	.3																321.0	36.3	Slightly acid.	...do....	Soft.....	88.7	......	
Daily av...		69.2	.....	1,756	1.021	....	....	2	.273	15.75	.743	.216	1.128	.887	.079	.162	17.0	1.91	188.3	27.9	....	....	....	85.2	.015	1.33

BALANCE, OCT. 6–12.

		Grams.
Nitrogen in food		117.12
Nitrogen in excreta:		
Urine	110.22	
Feces	9.27	
		119.49
Nitrogen balance		−2.37

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject II O—Continued.

SECOND SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine.															Feces.							
				Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
36	Oct. 13	68.6	0.5	1,825	1.022	Very slight.	Slight...	2	0.408	17.00	0.820	0.196	1.245	0.998	0.075	0.172	19.7	1.97	161.0	22.2	Slightly acid.	Charcoal	Soft formed.	86.2	0.018	9.40
37	Oct. 14	68.6	.5																212.5	28.8	Alkaline.	Brown charcoal.	Soft.....	86.5		
38	Oct. 15	69.2	.5	1,683	1.023	Slight to moderate	Moderate to strong	1	.483	14.75	.732	.169	1.113	.851	.115	.147	18.2	1.82	39.0	10.8	...do.....	Dark brown.	Hard....	72.3	....	
39	Oct. 16	69.4	.5																0	.....	....	....	....	...	....	
40	Oct. 17	......	.....																140.0	38.1	Alkaline.	Dark brown.	Hard....	72.8	.015	
41	Oct. 18	69.2	.5	1,530	1.024	Slight...	Strong..	1	.438	16.98	.790	.249	1.225	.962	.080	.183	16.2	1.98	276.0	38.1	...do.....	Brown..	Well formed.	86.2	....	
42	Oct. 19	69.4	.5																203.0	27.6	...do.....	...do.....	Soft formed.	86.4	....	
Daily av...		69.1	.....	1,680	1.023	....	....	1	.449	16.03	.774	.200	1.183	.925	.094	.164	18.1	1.91	147.3	23.7	....	....	....	83.9	.016	1.34
43	Oct. 20	69.4	.5	1,520	1.024	Slight...	Moderate to strong.	1	.417	16.20	.810	.234	1.163	.890	.080	.193	16.7	1.83	100.5	15.9	Alkaline	Brown..	Soft formed.	84.1	....	9.63
44	Oct. 21	69.6	.5																283.5	31.5	...do.....	...do	Little formed.	88.9	.022	
45	Oct. 22	69.6	.5	1,866	1.023	...do.....	Strong..	0	.380	17.00	.840	.205	1.263	.977	.084	.202	22.4	1.98	0	.....	....	....	....	...	....	
46	Oct. 23	69.6	.5																191.0	20.7	Alkaline	Greenish.	Soft formed.	89.2	....	
47	Oct. 24	.....	.5																218.5	50.4	...do.....	Dark brown.	Hard....	77.0	.014	

48	Oct. 25	69.4	.5	1,415	1.026	Very slight.	Moderate	0	.493	16.02	.750	.226	1.190	.926	.074	.190	19.2	1.55	29.0	24.3	...do	Brown..	Well formed.	82.0	......	
49	Oct. 26	69.4	.5																135.0							
	Oct. 27	......	.....	......	......	......	......	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39.5	9.9	...do.....	...do	Hard....	75.0	......	
Daily av...		69.5	.....	1,638	1.024	....	....	0	.423	16.49	.806	.219	1.214	.938	.080	.196	19.9	1.81	124.6	19.1	....	....	....	84.7	.018	1.38
50	Oct. 27	69.6	.5	1,695	1.028	Slight...	Moderate	2	.411	16.40	.740	.224	1.213	.914	.083	.216	20.7	1.71	104.5	28.8	Alkaline	Charcoal	Hard....	72.4	.0084	10.3
51	Oct. 28	69,4	.5																							
52	Oct. 29	69.4																	187.0	36.0	...do.....	Brown..	Well formed.	80.8	......	
53	Oct. 30	69.4	.5	1,666	1.022	Moderate to strong.	Slight to moderate.	2	.424	14.70	.700	.168	1.127	.862	.089	.176	17.3	1.83	288.5	39.0	...do.....	Light brown.	Not formed.	86.5	......	
			.5																							
54	Oct. 31	......																	0	.....	....	....	....	.....	......	
55	Nov. 1	69.2	.5	1,133	1.029	Strong..	...do.....	2	.459	15.64	.719	.222	1.152	.900	.082	.170	13.5	1.84	113.0	24.0	Alkaline	Brown..	Hard....	78.8	.011	
56	Nov. 2	69.4	.5																149.0	36.6	...do.....	Dark brown.	...do.....	75.5	......	
Daily av...		69.4	.....	1,522	1.026	....	....	2	.430	15.45	.717	.199	1.159	.888	.085	.186	17.2	1.80	140.3	27.4	....	....	....	80.5	.0097	1.47

BALANCE, OCT. 27–NOV. 2.

		Grams.
Nitrogen in food		120.46
Nitrogen in excreta:		
Urine	108.18	
Feces	10.30	
		118.48
Nitrogen balance		+1.98

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject II O—Continued.

THIRD SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
57	Nov. 3	69.6	0.75	1,728	1.022	Strong..	Moderate to strong.	2	0.737	18.13	0.823	0.235	1.299	0.973	0.095	0.231	17.6	1.77	110.5	21.0	Alkaline	Charcoal	Well formed.	81.0	......	12.73
58	Nov. 4	69.8	.75																156.0	29.4	...do....	Brown..	...do....	81.2	0.013	
																			62.0	17.4	...do.....	Dark brown.	Hard ...	71.9	......	
59	Nov. 5	69.7	.75	1,413	1.023	...do	Moderate	1	.618	15.03	.782	.195	1.175	.893	.087	.195	13.6	1.98	0	.....	....	....	....	.....	......	
60	Nov. 6	69.6	.75																176.5	33.3	Alkaline	Dark brown.	Hard ...	81.1	.017	
61	Nov. 7	......	.75																							
62	Nov. 8	69.6	.75	1,260	1.027	Slight...	Slight to moderate.	5	.633	14.65	.778	.226	1.151	.837	.082	.232	17.1	1.66	240.0	35.7	Slightly acid.	Brown..	Soft.....	80.5	......	
63	Nov. 9	69.8	.75																156.0	25.8	Alkaline	...do.....	Well formed.	85.2	......	
	Nov. 10	......	.....	......	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	202.5	29.4	Slightly acid.	...do.....	Barely formed.	85.5	......	
Daily av....		69.7	.....	1,459	1.024	....	....	2	.671	15.80	.793	.215	1.204	.900	.088	.216	15.7	1.83	138.0	24.0	....	....	....	82.6	.015	1.82
64	Nov. 10	70.0	.75	1,418	1.027	Strong..	Moderate to strong.	4	.735	15.20	.855	.238	1.200	.902	.078	.220	23.0	2.02	.....	.....	....	....	....	.....	......	10.03
65	Nov. 11	69.6	.75																146.0	22.2	Slightly acid.	Brown..	Soft formed.	84.8	.013	
66	Nov. 12	70.1	.75	1,666	1.023	Slight to moderate.	..do.....	4	.679	15.35	.887	.187	1.231	.903	.088	.240	18.3	1.98	137.0	27.0	Acid....	...do.....	Well formed.	80.3	......	
67	Nov. 13	69.7	.75																0	.....	....	....	....	.....	......	
68	Nov. 14	......	.75																99.0	29.1	Alkaline	Brown..	Hard ...	70.6	.0041	

69	Nov. 15	69.8	.75	1,663	1.022	Moderate to strong.	Moderate.	2	.788	17.23	.758	.232	1.349	1.005	.097	.247	17.6	2.07	307.0	45.6	Slightly acid.	...do.....	Little formed.	85.2	......	
70	Nov. 16	69.7	.75																278.0	40.5	Acid....	Light brown.	...do.....	77.3	......	
Daily av...		69.8	.....	1,594	1.024	....	....	3	.726	15.84	.841	.214	1.256	.932	.088	.236	19.4	2.02	161.2	27.4	....	....	....	83.0	.0085	1.43
71	Nov. 17	69.7	.75	1,745	1.024	Moderate	Moderate	6	.703	16.17	.695	.195	1.279	.970	.070	.239	22.4	1.79	71.5	15.3	Alkaline	Charcoal.	Hard ...	78.6	......	11.30
72	Nov. 18	70.1	.75																141.5	24.9	Slightly alkaline.	Brown..	Well formed.	82.4	.010	
73	Nov. 19	70.0	.75	1,588	1.025	Moderate to strong.	...do.....	2	.739	16.10	.776	.200	1.237	.928	.096	.213	17.4	1.93	127.5	27.6	Alkaline.	Dark green..	...do	86.2	......	
74	Nov. 20	69.8	.75																0	.....	....	....	....	.....	......	
75	Nov. 21	......	.75																346.0	63.9	Alkaline	Dark brown.	Well formed.	74.0	.027	
76	Nov. 22	69.8	.75	1,658	1.023	Strong..	Moderate to strong.	5	.573	15.55	.813	.223	1.159	.843	.098	.218	20.2	2.12	138.0	25.2	Acid....	Yellow..	...do	81.8	......	
77	Nov. 23	70.2	.75																114.0	25.8	...do.....	Dark yellow.	...do	77.4	......	
	Nov. 24	......	.....	......	.....	....	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39.0	12.6	...do.....	Dark brown.	Hard....	67.7	......	
Daily av...		69.9	.....	1,653	1.021	....	....	4	.681	15.96	.763	.205	1.227	.916	.089	.222	19.6	1.94	122.2	24.4	....	....	....	80.0	.019	1.61
78	Nov. 24	70.5	.75	2,120	1.020	Moderate.	Slight to moderate.	10	.712	18.45	.832	.248	1.422	1.002	.098	.322	15.3	1.91	.....	.....	....	....	....	.....	......	10.1
79	Nov. 25	......	.75																211.5	43.2	Alkaline	Charcoal.	Well formed.	79.6	.020	
																			69.5	20.7	...do.....	Dark brown.	Hard....	70.2	......	
80	Nov. 26	70.7	.75	1,774	1.022	...do.....	Slight...	3	.695	17.35	.621	.218	1.340	.976	.094	.270	15.2	2.40	241.0	44.1	Acid....	...do.....	Well formed.	81.7	......	
81	Nov. 27	70.2	.75																283.5	35.1	...do.....	Brown..	Hard and soft.	87.6	.022	
82	Nov. 28	......	.75	......	.....	....	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	115.5	19.2	...do.....	Light brown.	Soft formed.	83.4	......	
Daily av....		70.5	.....	1,912	1.021	....	....	6	.702	17.79	.705	.230	1.373	.986	.096	.291	15.2	2.20	184.2	32.5	....	....	....	82.4	.021	2.02

BALANCE, NOV. 17–23.

		Grams.
Nitrogen in food		133.50
Nitrogen in excreta:		
Urine	111.74	
Feces	11.30	
		123.04
Nitrogen balance		+10.46

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject H O—Continued.

FOURTH SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gms.*	*c.c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
83	Nov. 29	69.7	1.0	1,145	1.030	Moderate to strong.	Moderate	25	0.764	16.55	0.882	0.284	1.318	0.983	0.050	0.285	14.2	2.31	270.5	31.2	Acid....	Light brown.	Soft.....	88.5	......	12.65
84	Nov. 30	69.4	1.0																							
85	Dec. 1	70.2	1.0	1,510	1.026	Strong..	...do.....	0	.814	17.90	.867	.229	1.305	.957	.082	.266	18.7	1.88	255.5	34.5	...do.....	...do.....	Not formed.	86.5	......	
86	Dec. 2	69.8	1.0																90.0	21.3	...do.....	Brown..	Well formed.	76.3	0.0059	
87	Dec. 3	70.0	1.0	1,292	1.028	...do.....	Slight to moderate.	2	.963	15.00	.887	.200	1.192	.858	.099	.235	16.0	2.14	91.5	21.3	Alkaline.	...do.....	Hard....	76.7	......	
88	Dec. 4	69.8	1.0																0	.....	....	....	....	....	......	
89	Dec. 5	......	1.0																380.0	46.8	Acid....	Deep yellow.	Little formed.	87.7	.023	
90	Dec. 6	70.2	1.0	1,510	1.024	Moderate	Slight...	4	.933	16.17	.708	.259	1.298	.950	.100	.248	15.7	1.84	216.0	34.5	Slightly acid.	Brown..	Soft.....	84.0	......	
91	Dec. 7	70.2	1.0																0	.....	....	....	....	....	......	
	Dec. 8	......	.....	......	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	101.5	26.4	Neutral.	Brown..	Hard....	74.0	......	
Daily av ...		. 69.	9....	1 ,35	61.02	7........	....	....	7.87	916.2	5 .84	2 .23	81.26	9 .92	8 .08	5 .25	6 16.	1 2.0	5 156.	1 24.	0........	....	....	84.6	.014	1.4
92	Dec. 8	70.0	1.0	1,452	1.024	Moderate to strong.	Moderate	4	.995	16.82	.660	.220	1.277	.889	.094	.294	15.7	1.96	138.0	28.2	Alkaline.	Charcoal.	Well formed.	79.6	.012	11.52
93	Dec. 9	70.0	1.0																							
94	Dec. 10	70.0	1.0	1,663	1.02?	...do.....	...do.....	2	.883	16.60	.686	.216	1.314	.947	.095	.272	17.6	1.77	192.5	40.8	Neutral.	Brown..	Hard....	78.8	......	
95	Dec. 11	70.0	1.0																231.5	43.2	...do.....	Light brown.	Slightly formed.	81.4	......	
96	Dec. 12	......	1.0																238.5	23.4	Slightly acid.	Brown..	Little formed.	90.2	.013	

97	Dec. 13	69.7	1.0	1,548	1.026	...do.....	Moderate to strong.	1	.835	18.80	.825	.281	1.402	1.044	.089	.269	17.6	2.96	112.0	17.7	Neutral.	...do.....	Not formed.	84.2	......	
98	Dec. 14	69.8	1.0																47.5	14.1	Slightly alkaline.	Dark brown.	Hard....	70.1	......	
	Dec. 15	......	......	......	......	....	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60.5	16.8	...do.....	...do.....	...do.....	72.2	......	
Daily av....		69.9	.....	1,570	1.024	....	....	2	.901	17.29	.718	.236	1.329	.958	.093	.278	17.1	2.16	145.8	26.3	....	....	....	82.0	.013	1.65
99	Dec. 15	70.2	1.0	1,795	1.022	Strong..	Slight to moderate.	6	.950	15.15	.885	.192	1.299	.858	.096	.345	18.3	1.78	......	.....	....	....	....	.....	......	11.35
100	Dec. 16	70.2	1.0																109.0	29.7	Slightly alkaline.	Charcoal.	Well formed.	72.8	.020	
101	Dec. 17	70.0	1.0	1,514	1.023	...do.....	Moderate	7	.941	16.13	.753	.206	1.315	.961	.092	.262	13.9	2.10	0	.....	....	....	....	.....	......	
102	Dec. 18	......	1.0																191.0	48.3	Neutral.	Dark brown.	Hard....	74.7	......	
103	Dec. 19	......	1.0																111.5	13.8	Strongly acid.	Light brown.	Diar-rheal.	87.6	......	
104	Dec. 20	69.4	1.0	1,505	1.026	Moderate to strong.	...do.....	6	.980	20.36	.948	.318	1.591	1.107	.100	.384	12.9	2.50	214.5	41.4	Neutral.	Dark brown.	Well formed.	80.7	......	
105	Dec. 21	70.0	1.0																134.5	22.2	...do.....	Brown..	Little formed.	83.5	......	
	Dec. 22	......	......	......	......	....	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	141.5	27.0	Slightly alkaline.	...do.....	Well formed.	80.9	......	
Daily av....		70.0	.....	1,592	1.024	....	....	6	.955	17.06	.846	.234	1.389	.973	.095	.321	14.9	2.12	128.9	26.1	....	....	....	79.8	.020	1.62

BALANCE, DEC. 8–14.

		Grams.
Nitrogen in food		129.91
Nitrogen in excreta:		
Urine	120.64	
Feces	11.52	
		132.16
Nitrogen balance		−2.25

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject II O—Continued.

FIFTH SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gms.*	*c. c.*					*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
106	Dec. 22	69.8	1.5	1,350	1.927	Strong..	Moderate	6	1.252	16.64	0.851	0.233	1.290	0.914	0.077	0.299	16.2	1.82	127.0	27.6	Slightly alkaline.	Brown..	Hard....	78.3	0.018	
107	Dec. 23	70.0	1.5																							
108	Dec. 24	70.0	1.5	1,607	1.026	Moderate to strong.	...do.....	7	1.260	19.60	.787	.306	1.530	1.028	.099	.403	14.4	2.26	116.0	31.2	Neutral.	Dark brown.	...do.....	73.1	......	
109	Dec. 25	......	1.5																123.5	30.9	...do.....	...do.....	...do.....	75.0	......	10.33
110	Dec. 27	......	1.5																205.0	25.8	Acid....	Light brown.	Diarrheal.	87.4	.012	
111	Dec. 27	70.5	1.5	1,952	1.023	Strong..	...do.....	30	1.283	18.36	.875	.292	1.505	1.021	.089	.395	20.1	2.11	100.5	13.2	...do.....	...do.....	Soft.....	86.9	......	
112	Dec. 28	70.8	1.5																119.0	23.4	Slightly acid.	Brown..	Well formed.	80.4	......	
	Dec. 29	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....	....	59.0	17.4	Neutral.	Dark brown.	Hard....	70.5	......	
Daily av....		70.2	....	1,632	1.025	....	....	13	1.264	18.40	.830	.281	1.454	.993	.090	.371	16.5	2.09	121.4	24.2	....	....	....	80.1	.015	1.48
113	Dec. 29	70.2	1.5	1,640	1.026	Moderate to strong.	Moderate to strong.	7	1.282	21.38	.997	.315	1.620	1.134	.097	.389	17.1	2.48	143.0	32.4	Slightly alkaline.	Charcoal	Hard....	77.3	.010	
114	Dec. 30	70.3	1.5																							
115	Dec. 31	70.0	1.5	1,367	1.025	Strong..	Moderate	7	1.480	15.90	.804	.232	1.358	.885	.097	.376	14.5	2.02	.0	....	....	....	....	....	......	
116	1910. Jan. 1	......	1.5																145.5	42.6	Acid....	Dark brown.	Hard...	70.7	......	
117	Jan. 2	......	1.5																.0	....	....	....	....	....	......	11.54

118	Jan. 3	70.0	1.5	1,550	1.025	...do.....	...do.....	71.344	17.25	.608	.242	1.382	.949	.085	.348	17.4	1.95	265.0	46.8	Slightly acid.	Brown..	Little formed.	82.3	.016	
119	Jan. 4	69.8	1.5															118.5	28.5	Neutral.	Light brown.	Hard....	76.0	......	
	Jan. 5	......	.....	.....	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	222.0	30.9	Acid....	...do.....	Soft.....	86.1	......	
Daily av....		70.1	.....	1,497	1.025	....	....	71.385	17.85	.803	.259	1.440	.974	.094	.372	16.1	2.13	127.7	25.9	....	....	....	79.7	.013	1.65

BALANCE, DEC. 29–JAN. 4.

		Grams.
Nitrogen in food		134.08
Nitrogen in excreta:		
Urine	124.96	
Feces	11.54	
		136.50
Nitrogen balance		−2.42

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject II O—Continued.

FIFTH SACCHARIN PERIOD—Continued.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine.																Feces.							
				Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1910.	Kilos.	Gms.	c. c.					Gms.	Gms.	Gm.	Gm.	Gms.	Gms.	Gm.	Gm.	Gms.	Gms.	Gms.	Gms.				P.c.	Gm.	Gms.
120	Jan. 5	69.8	1.5	1,383	1.027	....	....	25											......	.....	....	....	....	.....	......	
121	Jan. 6	69.8	1.5																219.0	33.0	Acid....	Charcoal	Soft.....	84.9	0.020	
122	Jan. 7	70.0	1.5																135.5	30.3	Neutral.	Brown..	Hard....	77.6	......	
123	Jan. 8	70.0	1.5	1,640	1.022	....	....	1											0	.....	....	....	....	.....	......	
124	Jan. 9	......	1.5						1.433	15.58	0.920	0.234	1.279	0.872	0.083	0.324	14.0	1.68	311.0	53.7	Acid....	Brown..	Slightly formed.	82.7	.037	10.38
125	Jan. 10	69.8	1.5	1,485	1.023	Moderate	Moderate	10											84.0	12.0	...do....	Light brown.	Soft.....	85.7	......	
126	Jan. 11	70.2	1.5																138.0	35.4	...do....	Brown..	Hard....	74.4	......	
Daily av....		69.9	.....	1,522	1.024	....	....	10	1.433	15.58	.920	.234	1.279	.872	.083	.324	14.0	1.68	147.9	27.4	....	....	....	81.5	.029	1.48
127	Jan. 12	70.2	1.5																245.5	35.1	Strongly alkaline.	Light brown.	Diarrheal	85.7	......	
128	Jan. 13	69.8	1.5	1,570	1.026	Moderate to strong.	Slight to moderate.	8											99.0	19.8	Slightly acid.	Brown..	Little formed.	80.0	.0075	
129	Jan. 14	70.0	1.5																209.0	33.9	Strongly acid.	Light brown.	...do....	88.3	......	
130	Jan. 15	70.0	1.5	1,660	1.020	....	....	12	1.337	16.27	.910	.225	1.385	.936	.091	.358	15.6	1.69	0	.....	....	....	....	.....	......	11.28
131	Jan. 16	......	1.5																78.5	22.5	Acid....	Brown..	Hard....	71.3	.0064	
132	Jan. 17	70.2	1.5																81.0	24.9	Slightly acid.	Dark brown.	...do....	69.3	......	
133	Jan. 18	70.4	1.5	1,760	1.022	Slight to moderate.	Moderate.	40											260.5	37.8	...do....	Light brown.	Little formed.	85.6	......	
Daily av....		70.1	.....	1,663	1.022	....	....	19	1.337	16.27	.910	.225	1.385	.936	.091	.358	15.6	1.69	139.1	24.9	....	....	....	82.1	.0070	1.61

134	Jan. 19	69.8	1.5	1,755	1.022	Slight to moderate.	Slight to moderate.	40											178.0	25.8	Neutral.	Charcoal	Not formed.	85.5	......	
135	Jan. 20	70.3	1.5																0	....	....	....	....	....	......	
136	Jan. 21	70.4	1.5																191.5	42.0	Neutral.	Brown..	Hard....	78.1	.014	
137	Jan. 22	70.3	1.5																0	....	....	....	....	....	......	
138	Jan. 23	......	1.5	1,513	1.024	Moderate to strong.	Moderate.	7	1.407	15.86	.911	.222	1.340	.905	.077	.358	17.3	1 62	247.5	53.4	Slightly acid.	Brown..	Well formed.	78.4	.022	12.51
139	Jan. 24	70.2	1.5																127.0	21.6	Acid....	Light brown.	Soft formed.	83.0	......	
140	Jan. 25	70.3	1.5	1,500	1.026	Moderate.	Moderate to strong.	6											178.5	27.9	Slightly alkaline.	...do....	Not formed.	84.4	......	
	Jan. 26	......	.....	......	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	129.5	21.0	...do....	...do....	...do....	83.8	......	
Daily av....		70.2	.....	1,578	1.024	....	....	16	1.407	15.86	.911	.222	1.340	.905	.077	.358	17.3	1.62	131.5	24.0				81.8	.018	1.79
141	Jan. 26	70.4	1.5																.....	....	....	....	....	....	......	
142	Jan. 27	70.7	1.5	1,800	1.023	Slight...	Moderate	40	1.409	15.92	.833	.245	1.288	.838	.093	.357	14.8	2.24	313.5	41.4	Neutral.	Charcoal	Not formed.	86.8	.018	
143	Jan. 28	70.5	1.5																0	....	....	....	....	....	......	
144	Jan. 29	70.5	1.5	1,710	1.024	Slight to moderate.	..do....	60	1.395	17.0	.839	.262	1.440	.984	.091	.365	17.9	2.28	138.0	31.5	Slightly acid.	Brown..	Hard....	77.2	......	10.5
145	Jan. 30	......	1.5																103.5	27.6	Strongly alkaline.	...do....	...do....	73.4	.010	
146	Jan. 31	70.3	1.5																162.0	35.4	Alkaline	...do....	...do....	78.2	......	
147	Feb. 1	70.6	1.5	1,800	1.023	...do....	...do....	80	1.424	18.10	.844	.245	1.534	1.027	.106	.401	16.7	2.14	147.0	26.7	Acid....	...do....	Well formed.	81.8	......	
Daily av....		70.5	.....	1,761	1.023	....	....	60	1.407	17.01	.839	.252	1.424	.955	.096	.373	16.7	2.23	144.0	27.1	....	....	....	81.2	.014	1 50
148	Feb. 2	70.5	1.5																147.5	31.2	Acid....	Charcoal	Well formed.	78.8	......	
149	Feb. 3	70.7	1.5	1,773	1.024	Moderate	Moderate to strong.	85	1.398	16.82	.832	.250	1.440	.907	.093	.440	15.6	2.14	106.5	24.3	Neutral.	Brown..	Hard....	77.2	.0097	6.37
150	Feb. 4	70.7	1.5																232.0	45.0	Slightly acid.	Light brown.	Hard and diarrheal.	80.6	......	
Daily av....		70.6	.....	1,773	1.024	....	....	85	1.398	16.82	.832	.250	1.440	.907	.093	.440	15.6	2.14	162.0	33.5	....	....	....	79.4	.0097	2.12

BALANCE, JAN. 19–25.

		Grams.
Nitrogen in food		136.80
Nitrogen in excreta:		
Urine	111.02	
Feces	12.51	
		123.53
Nitrogen balance		+13.27

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject II O—Continued.

AFTER PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Urine. Specific gravity.	Urine. Aromatic oxy-acids.	Urine. Indolacetic acid.	Urine. Indican (Fehling's solution=100).	Urine. Saccharin.	Urine. Total nitrogen.	Urine. Ammonia nitrogen.	Urine. Uric acid nitrogen.	Urine. Total sulphur.	Urine. Inorganic sulphur.	Urine. Ethereal sulphur.	Urine. Neutral sulphur.	Urine. Chlorine as NaCl.	Urine. Total acidity as oxalic acid.	Feces. Weight. Moist.	Feces. Weight. Air dry.	Feces. Reaction.	Feces. Color.	Feces. Consistence.	Feces. Water.	Feces. Hydrogen sulphide.	Feces. Total nitrogen.
	1910.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
151	Feb. 5	70.6	0	1,495	1.025	Moderate to strong.	Moderate.	30	0.056	15.53	0.765	0.188	1.079	0.849	0.089	0.141	15.0	2.10	179.0	37.2	Acid....	Charcoal	Hard....	79.3	......	11.15
152	Feb. 6	......	0																291.0	33.9	Strongly acid.	Yellow..	Soft.....	88.3	0.0081	
153	Feb. 7	70.5	0	1,200	1.026	...do....	Moderate to strong.	25	Tr.	14.29	.875	.218	1.060	.862	.073	.125	12.9	2.40	53.0	12.0	Acid....	Brown..	Well formed.	77.3	......	
154	Feb. 8	70.4	0																86.0	25.2	Alkaline	...do....	...do....	70.7	......	
155	Feb. 9	70.6	0	1,097	1.029	Strong..	Slight to moderate.	30	0	14.96	.530	.218	1.178	.908	.077	.193	11.8	2.27	143.0	34.5	Slightly acid.	...do....	Hard....	75.9	......	
156	Feb. 10	70.5	0																167.0	25.1	Acid....	...do....	Little formed.	85.0	.027	
157	Feb. 11	70.6	0																180.0	32.4	Alkaline	...do....	Soft formed.	82.0	......	
Daily av....		70.5	.....	1,240	1.027	....	....	29	.008	14.93	.696	.209	1.116	.878	.079	.159	13.0	2.26	157.0	28.6	....	....	....	81.8	.018	1.59
158	Feb. 12	70.8	0	1,910	1.022	Slight to moderate.	Slight...	35	.....	15.88	.884	.194	1.154	.866	.107	.181	19.5	2.38	168.0	42.0	Alkaline	Charcoal	Hard....	75.0	......	12.45
159	Feb. 13	......	0																152.0	19.2	Slightly acid.	Light brown.	Not formed.	87.4	.0051	
160	Feb. 14	70.5	0	1,555	1.025	Moderate to strong.	Moderate to strong.	7	.....	16.78	.882	.236	1.235	.983	.097	.155	17.4	2.02	147.0	24.6	Acid....	...do....	...do....	83.3	......	
161	Feb. 15	70.7	0																401.0	49.5	Slightly alkaline.	...do....	Hard and diarrheal.	87.7	......	

162	Feb. 16	70.3	0																121.0	23.1	...do....	Brown..	Well formed.	80.9	......	
163	Feb. 17	70.4	0	1,090	1.029	Moderate	Slight to moderate.	30	.....	16.28	.886	.221	1.255	.920	.085	.250	11.8	2.42	75.5	15.0	...do....	...do....	...do....	80.1	.0041	
164	Feb. 18	70.7	0																127.0	29.4	Alkaline	...do....	Hard....	76.9	......	
Daily av....		70.5	.....	1,457	1.026	....	....	25	.....	16.31	.884	.218	1.221	.923	.095	.203	15.6	2.29	170.2	29.0	....	....	....	83.0	.0046	1.78

BALANCE, FEB. 12-18.

		Grams.
Nitrogen in food		127.55
Nitrogen in excreta:		
Urine	114.16	
Feces	12.45	
		126.61
Nitrogen balance		+.94

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N.

FORE PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gms.*	*c. c.*					*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
1	Sept. 20	61.9	0	695	1.032	Slight...	Moderate.	4	.....	11.95	0.603	0.172	0.999	0.791	0.059	0.149	8.82	1.28	77.5	18.3	Alkaline	Brown..	Hard....	76.4	......	13.7
2	Sept. 21	61.9	0																148.0	30.0	....do...	....do...	Soft formed.	79.7	0.0067	
3	Sept. 22	62.2	0	1,087	1.033	....do...	....do....	4	.....	19.95	.920	.292	1.480	1.178	.059	.243	13.4	2.34	67.0	11.4	....do....	....do....	Not formed.	82.9	......	
4	Sept. 23	62.2	0																223.5	45.0	....do....	Greenish	Soft formed.	79.9	.0106	
5	Sept. 24	61.9	0	833	1.029	Moderate.	....do....	25	.....	11.80	.489	.163	.836	.657	.049	.130	11.5	1.44	120.0	17.7	....do....	Brown..	Not formed.	85.2	......	
6	Sept. 25	61.7	0																313.0	49.5	Slightly acid.	Light brown.	....do....	84.1	......	
7	Sept. 26	61.7	0																200.0	33.6	Neutral.	Brown..	Soft formed.	83.2	.0061	
Daily ave..		61.9	.....	866	1.031	....	....	13	.....	14.18	.645	.202	1.067	.844	.055	.168	11.2	1.65	164.1	29.4	....	....	....	82.1	.0078	1.96
8	Sept. 27	62.1	0	827	1.027	Moderate.	Slight...	20	.....	10.40	.568	.154	.785	.625	.045	.115	9.70	1.41	169.0	27.6	Alkaline	Charcoal	Not formed.	83.7	......	13.28
9	Sept. 28	62.1	0																142.5	24.9	Slightly alkaline.	Brown charcoal.	Soft formed.	82.5	.0066	
10	Sept. 29	61.9	0	723	1.030	Very slight.	Moderate.	10	.....	10.99	.470	.142	.737	.592	.038	.107	8.32	1.41	216.5	36.6	Alkaline	Light brown.	....do....	83.1	......	
11	Sept. 30	61.9	0																155.8	22.8	....do....	Yellow..	....do....	85.4	.0028	

12	Oct. 1	61.9	0																177.5	30.6	....do....	Light brown.	....do....	82.8	......	
13	Oct. 2	62.1	0	1,533	1.025	Slight...	Slight...	0	.....	14.93	.740	.222	1.175	.900	.057	.218	18.2	1.73	203.5	30.3	Slightly alkaline.	....do....	Not formed.	85.2	......	
14	Oct. 3	......	0																199.8	35.4	Alkaline	Brown..	Soft formed.	82.3	.0040	
Daily ave..		62.0	.....	1,100	1.027	....	....	9	.....	12.51	.614	.180	.938	.733	.048	.157	13.0	1.55	180.7	29.7	....	....	....	83.6	.0045	1.90

BALANCE, SEPT. 27–OCT. 2.

		Grams.
Nitrogen in food		114.70
Nitrogen in excreta:		
Urine	87.57	
Feces	13.28	
		100.85
Nitrogen balance		+13.85

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N—Continued.

FIRST SACCHARIN PERIOD.

Day of experiment.	Date	Body weight.	Daily dose saccharin.	Urine. Average volume.	Urine. Specific gravity.	Urine. Aromatic oxy-acids.	Urine. Indolacetic acid.	Urine. Indican (Fehling's solution=100).	Urine. Saccharin.	Urine. Total nitrogen.	Urine. Ammonia nitrogen.	Urine. Uric acid nitrogen.	Urine. Total sulphur.	Urine. Inorganic sulphur.	Urine. Ethereal sulphur.	Urine. Neutral sulphur.	Urine. Chlorine as NaCl.	Urine. Total acidity as oxalic acid.	Feces. Weight. Moist.	Feces. Weight. Air dry.	Feces. Reaction.	Feces. Color.	Feces. Consistence.	Feces. Water.	Feces. Hydrogen sulphide.	Feces. Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gm.*	*Gm*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
15	Oct. 4	62.1	0.3	1,335	1.022	Slight...	Slight...	4	0.189	13.30	0.680	0.172	0.945	0.764	0.043	0.138	15.2	1.85	181.5	27.0	Neutral.	Charcoal	Not formed.	85.1	......	14.22
16	Oct. 5	62.0	.3																45.0	8.1	Alkaline	Brown..	Well formed.	82.0	......	
17	Oct. 6	62.0	.3	1,310	1.028	Negative	Slight to moderate	4	.233	17.25	.680	.282	1.268	1.045	.065	.158	16.6	1.98	298.0	49.8	....do....	....do....	Soft formed.	83.3	......	
18	Oct. 7	62.2	.3																219.5	32.4	Neutral.	Light brown.	....do....	85.2	0.0061	
19	Oct. 8	62.0	.3																232.0	34.8	Acid....	Deep yellow.	....do....	85.0	......	
20	Oct. 9	62.0	.3	1,100	1.027	Moderate	Slight...	3	.227	13.02	.618	.209	.939	.760	.071	.108	14.7	1.78	232.5	35.1	....do....	Light brown.	Not formed.	85.0	......	
21	Oct. 10	......	.3																193.5	30.3	Slightly acid.	Brown..	....do....	84.4	.0046	
Daily av...		62.1	.....	1,227	1.026	....	....	4	.218	14.31	.653	.219	1.035	.843	.061	.131	15.7	1.86	200.3	31.1	....	....	....	84.5	.0054	2.03
22	Oct. 11	62.1	.3	1,712	1.025	Negative	Slight to moderate	0	.260	18.35	.815	.255	1.308	1.073	.090	.145	21.3	2.01	192.5	32.7	Strongly alkaline.	Charcoal	Well formed.	83.0	......	14.28
23	Oct. 12	62.0	.3																171.0	32.4	Alkaline.	Brown..	....do....	81.1	......	
24	Oct. 13	62.1	.3	1,585	1.020	Slight...	Slight...	0	.220	13.50	.500	.183	.985	.782	.041	.162	16.2	1.43	167.5	31.8	....do....	....do....	....do....	81.0	......	
25	Oct. 14	61.7	.3																134.5	27.0	....do....	....do....	....do....	79.9	.0040	
26	Oct. 15	61.7	.3																215.5	41.4	....do....	Light brown.	....do....	80.8	......	
27	Oct. 16	61.9	.3	1,772	1.020	...do....	Slight to moderate.	0	.214	15.45	.550	.182	1.125	.921	.090	.114	17.4	1.53	163.0	32.4	....do....	Brown..	....do....	80.1	......	
28	Oct. 17	......	.3																216.0	37.2	....do....	....do....	....do....	82.8	.0042	
Daily av...		61.9	.....	1,701	1.021	....	....	0	.229	15.72	.611	.203	1.137	.924	.076	.137	18.2	1.64	180.0	33.6	....	....	....	81.4	.0041	2.04

29	Oct. 18	61.9	.3	1,540	1.026	Slight...	Slight to moderate	1	.277	17.50	.800	.242	1.380	1.163	.062	.155	15.1	2.16	213.5	36.3	Alkaline	Charcoal	Well formed.	83.0	......	13.65
30	Oct. 19	61.9	.3																261.5	33.3	....do....	Dark brown.	Soft formed.	87.2	......	
31	Oct. 20	61.9	.3	1,250	1.026	....do....	Moderate	4	.240	14.85	.500	.228	1.191	.911	.122	.158	12.5	1.94	73.0	13.2	....do....	Brown..	Well formed.	81.9	......	
32	Oct. 21	61.7	.3																206.5	36.0	....do....	....do....	Soft formed.	82.6	.0053	
33	Oct. 22	61.7	.3	1,225	1.025	Moderate	Slight...	4	.206	12.95	.510	.193	.931	.755	.044	.132	14.5	1.48	263.0	44.7	....do....	Light brown.	....do....	83.0	......	
34	Oct. 23	61.7	.3																165.0	34.5	....do....	Brown..	Well formed.	79.1	......	
35	Oct. 24	......	.3																99.5	24.6	....do....	....do....	....do....	75.3	.0032	
Daily av...		61.8	.....	1,322	1.026	....	....	3	.236	14.79	.590	.217	1.134	.916	.072	.146	14.1	1.81	183.1	31.8	....	....	....	82.7	.0043	1.95

BALANCE, OCT. 18-24.

		Grams.
Nitrogen in food		122.80
Nitrogen in excreta:		
Urine	103.55	
Feces	13.65	
		117.20
Nitrogen balance		+5.60

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N—Continued.

SECOND SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indol-acetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
36	Oct. 25	61.7	0.5	1,818	1.018	Slight...	Very slight.	0	0.347	14.80	0.740	0.160	1.185	0.957	0.074	0.154	12.7	1.90	255.5	41.1	Alkaline	Charcoal	Well formed.	83.9	......	16.45
37	Oct. 26	61.7	.5																196.0	35.1	...do....	Brown charcoal.	...do....	82.1	......	
38	Oct. 27	61.7	.5	1,340	1.024	Very slight.	Moderate.	0	.466	15.90	.660	.212	1.152	.905	.090	.157	13.1	1.64	175.0	29.1	...do....	Brown..	...do....	83.4	......	
39	Oct. 28	62.1	.5																87.5	15.9	...do....	...do....	...do....	81.8	0.0017	
40	Oct. 29	61.9	.5	1,488	1.025	Slight...	Slight...	0	.420	14.60	.570	.180	1.124	.890	.057	.177	16.0	1.49	467.0	72.0	Strongly acid.	Light brown.	Soft, fermenting.	84.6	......	
41	Oct. 30	62.0	.5																173.5	33.0	Acid....	...do....	Soft formed.	81.0	......	
42	Oct. 31	......	.5																192.5	29.4	...do....	...do....	Little formed.	84.8	.0007	
Daily av...		61.9	.....	1,523	1.023	....	....	0	.412	15.03	.644	.183	1.149	.913	.071	.165	14.2	1.65	221.0	36.5	....	....	....	83.5	.0012	2.35
43	Nov. 1	62.0	.5	1,418	1.024	Slight to moderate.	Slight...	0	.379	15.35	.676	.198	1.128	.882	.055	.191	16.9	2.55	166.5	30.3	Neutral.	Brown..	Soft formed.	81.8	......	14.06
44	Nov. 2	62.5	.5																193.0	33.3	Alkaline	...do....	Well formed.	82.8	......	
45	Nov. 3	62.4	.5	1,443	1.026	Moderate.	Moderate.	0	.475	19.37	.799	.272	1.445	1.182	.063	.200	15.9	2.08	195.5	32.1	Slightly acid.	Light brown.	Little formed.	83.6	......	
46	Nov. 4	62.2	.5																114.5	22.5	...do....	...do....	Well formed.	80.3	.0047	

47	Nov. 5	62.4	.5	1,260	1.026	Slight to moderate.	Slight to moderate.	1	.312	14.00	.600	.241	.979	.779	.046	.154	15.0	1.70	152.5	30.9	...do....	...do....	Little formed.	79.7	......	
48	Nov. 6	62.4	.5																230.5	38.4	Acid....	Brown..	...do....	83.7	......	
49	Nov. 7	......	.5																227.5	36.9	...do....	...do....	...do....	83.8	.0073	
Daily av....		62.3	.....	1,357	1.025	....	....	0	.378	15.92	.679	.238	1.155	.924	.053	.178	15.8	2.05	182.9	32.1	....	....	....	82.5	.0060	2.01
50	Nov. 8	62.8	.5	1,605	1.025	Moderate.	Slight...	3	.410	15.69	.720	.218	1.279	1.010	.062	.207	20.5	1.70	201.0	33.9	Slightly alkaline.	Charcoal	Slightly formed.	83.1	......	12.22
51	Nov. 9	62.8	.5																152.5	32.7	Alkaline.	Brown..	Well formed.	78.6	......	
52	Nov. 10	62.6	.5	1,338	1.022	Moderate to strong.	Slight to moderate.	1	.414	13.81	.538	.182	1.030	.815	.056	.159	13.1	1.64	50.5	12.0	...do....	...do....	...do....	76.2	......	
53	Nov. 11	62.6	.5																210.0	39.9	Neutral.	...do....	...do....	80.3	.0031	
54	Nov. 12	62.8	.5	1,463	1.026	...do....	...do....	1	.422	15.07	.615	.178	1.063	.858	.064	.141	16.4	1.69	235.5	36.6	Strongly acid.	Light brown.	Slightly formed.	84.5	......	
55	Nov. 13	62.8	.5																136.0	24.9	Alkaline.	Dark brown.	Soft formed.	81.7	......	
56	Nov. 14	......	.5																73.5	17.7	...do....	...do....	Well formed.	75.9	.0014	
Daily av...		62.8	.....	1,468	1.025	....	....	2	.416	14.89	.623	.191	1.115	.889	.061	.165	16.6	1.68	151.3	28.2	....	....	....	81.4	.0023	1.74

BALANCE, NOV. 8-14.

		Grams.
Nitrogen in food		143.52
Nitrogen in excreta:		
Urine	104.21	
Feces	12.22	
		116.43
Nitrogen balance		+27.09

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N—Continued.

THIRD SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Urine. Specific gravity.	Urine. Aromatic oxy-acids.	Urine. Indol-acetic acid.	Urine. Indican (Fehling's solution=100).	Urine. Saccharin.	Urine. Total nitrogen.	Urine. Ammonia nitrogen.	Urine. Uric acid nitrogen.	Urine. Total sulphur.	Urine. Inorganic sulphur.	Urine. Ethereal sulphur.	Urine. Neutral sulphur.	Urine. Chlorine as NaCl.	Urine. Total acidity as oxalic acid.	Feces. Weight. Moist.	Feces. Weight. Air dry.	Feces. Reaction.	Feces. Color.	Feces. Consistence.	Feces. Water.	Feces. Hydrogen sulphide.	Feces. Total nitrogen.
	1909.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
57	Nov. 15	62.6	0.75																197.0	38.7	Slightly alkaline.	Charcoal	Well formed.	79.8	......	
58	Nov. 16	62.8	.75	1,770	1.023	Moderate to strong.	Slight to moderate.	1	0.758	20.64	0.620	0.336	1.543	1.204	0.088	0.251	14.9	2.55	183.5	37.5	Alkaline	Dark brown.	...do....	78.7	......	
59	Nov. 17	62.8	.75																113.5	21.0	Neutral.	Light brown.	...do....	81.5	......	
60	Nov. 18	62.7	.75	1,213	1.025	Slight to moderate.	...do....	4	.488	12.68	.505	.165	.990	.764	.039	.187	13.0	1.29	208.5	40.2	Slightly acid.	...do....	...do....	80.7	0.0059	15.09
61	Nov. 19	62.8	.75																122.0	28.2	Slightly alkaline.	Brown..	...do....	76.8	......	
62	Nov. 20	62.9	.75	2,074	1.020	...do....	Slight...	1	.496	15.25	.698	.162	1.155	.886	.066	.203	16.6	1.68	145.5	29.7	Acid....	Light brown.	Slightly formed.	79.8	......	
63	Nov. 21	......	.75																173.5	28.8	Slightly acid.	Reddish brown.	...do....	83.4	.0046	
Daily av...		62.8	.....	1,741	1.022	....	....	2	.569	16.06	.621	.213	1.219	.942	.065	.212	15.1	1.82	163.4	32.0	....	....	....	80.4	.0053	2.16
64	Nov. 22	62.8	.75																218.5	38.7	Slightly acid.	Charcoal	Well formed.	82.3	......	
65	Nov. 23	63.0	.75	1,488	1.024	Slight to moderate.	Moderate.	2	.588	16.80	.688	.231	1.270	.995	.068	.207	16.7	1.82	237.0	43.2	Alkaline	Dark brown.	Slightly formed.	81.8	......	
66	Nov. 24	63.1	.75																116.0	22.5	...do....	...do....	Little formed.	80.6	......	
67	Nov. 25	......	.75	1,908	1.021	Slight...	Slight...	0	.614	17.40	.762	.244	1.310	.995	.075	.240	16.1	2.03	177.5	29.1	Strongly acid.	Reddish brown.	Slightly formed.	78.0	.0068	15.78

68	Nov. 26	63.1	.75																	253.5	42.9	Slightly alkaline.	Deep brown.	Well formed.	83.1	......	
69	Nov. 27	63.0	.75	1,415	1.021	Moderate.	...do....	2	.512	13.03	.435	.165	.980	.745	.047	.188	9.9	1.61	111.5	17.7	...do....	Dark brown.	Little formed.	84.2	......	
70	Nov. 28	......	.75																	235.5	45.9	...do....	Brown..	Hard....	80.4	.0082	
Daily av....		63.0	.....	1,577	1.022	....	....	1	.563	15.36	.601	.206	1.157	.888	.061	.208	13.6	1.79	192.8	34.3	....	....	....	82.2	.0075	2.25
71	Nov. 29	63.2	.75	1,548	1.023	Slight to moderate.	Slight...	6	.570	13.80	.630	.205	1.125	.852	.053	.220	14.1	1.20	208.5	35.7	Slightly alkaline.	Charcoal	Little formed.	82.8	......	
72	Nov. 30	63.1	.75																	0	.....	....	....	....	.....	......	
73	Dec. 1	63.0	.75																	299.5	55.2	Neutral.	Brown..	Little formed.	81.6	......	
74	Dec. 2	63.0	.75	1,415	1.026	Moderate.	...do....	1	.622	16.93	.733	.150	1.358	1.029	.046	.283	16.2	1.99	126.0	21.3	Slightly alkaline.	Light brown.	...do....	83.2	.0026	12.2
75	Dec. 3	62.8	.75																	224.5	34.2	...do....	Reddish brown.	...do....	84.8	......	
76	Dec. 4	63.0	.75	1,572	1.027	...do....	...do....	1	.690	17.85	.704	.244	1.384	1.100	.057	.227	16.7	1.90	203.0	31.5	...do....	Brown..	Soft.....	84.6	......	
77	Dec. 5	......	.75																	61.0	14.1	Slightly acid.	Dark brown.	Hard....	76.8	.0024	
Daily av....		63.0	.....	1,520	1.026	....	....	2	.636	16.43	.691	.206	1.303	1.009	.053	.241	15.8	1.73	160.4	27.4	....	....	....	82.9	.0025	1.75

BALANCE, NOV. 29–DEC. 5.

		Grams.
Nitrogen in food		132.22
Nitrogen in excreta:		
Urine	115.01	
Feces	12.20	
		127.21
Nitrogen balance		+5.01

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N—Continued.

FOURTH SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indol-acetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	Kilos.	Gm.	c. c.					Gm.	Gms.	Gm.	Gm.	Gms.	Gm.	Gm.	Gm.	Gms.	Gms.	Gms.	Gms.				P.c.	Gm.	Gms.
78	Dec. 6	62.6	1.0																213.0	35.4	Slightly acid.	Charcoal	Soft formed.	83.4	......	
79	Dec. 7	63.1	1.0	1,942	1.020	Slight...	Negative	12	0.728	16.40	0.708	0.145	1.215	0.940	0.058	0.217	17.9	1.57	305.0	40.8	...do....	Dark brown.	Not formed.	86.7	......	
80	Dec. 8	63.0	1.0																135.5	23.7	Alkaline.	...do....	Slightly formed.	82.7	......	
81	Dec. 9	62.8	1.0	1,633	1.021	Slight to moderate.	Slight...	2	.790	16.15	.662	.234	1.243	.927	.060	.256	15.7	1.56	151.5	24.3	Acid....	Light brown.	Soft.....	84.0	0.0053	15.92
82	Dec. 10	62.8	1.0																337.0	43.5	Strongly alkaline.	Dark brown.	...do.....	87.2	......	
83	Dec. 11	62.8	1.0	1,620	1.025	Moderate.	Slight to moderate.	2	.542	16.10	.635	.227	1.212	.906	.067	.239	14.6	1.52	208.5	32.1	Alkaline.	...do.....	Slightly formed.	84.7	......	
84	Dec. 12	......	1.0																260.0	39.0	Acid....	Brown..	Soft.....	85.0	.0203	
Daily av....		62.9	....	1,716	1.022	....	....	5	.666	16.20	.663	.206	1.222	.922	.062	.238	15.9	1.55	230.1	34.1	....	....	....	85.2	.0128	2.27
85	Dec. 13	63.4	1.0																138.5	26.1	Slightly acid.	Charcoal	Soft.....	81.2	......	
86	Dec. 14	63.1	1.0	1,838	1.017	Slight to moderate.	Slight...	4	.898	13.79	.566	.190	1.134	.820	.043	.271	18.7	1.36	190.5	36.3	Acid....	Brown..	Slightly formed.	80.8	......	
87	Dec. 15	63.2	1.0																197.5	33.0	Slightly acid.	Light brown.	Soft.....	83.3	......	
88	Dec. 16	63.5	1.0	1,755	1.020	...do.....	Slight to moderate.	3	.624	15.07	.713	.223	1.267	.894	.061	.312	15.1	1.39	120.5	23.1	Neutral.	...do.....	...do.....	80.8	.0061	14.01

89	Dec. 17	63.2	1.0	1,572	1.021	Moderate.	...do.....	6	.632	14.53	.573	.217	1.120	.810	.065	.245	12.9	1.67	120.0	19.5	...do.....	...do.....	...do.....	83.8	......	
90	Dec. 18	63.4	1.0																163.0	35.7	Slightly acid.	Dark brown.	Well formed.	78.1	......	
91	Dec. 19	......	1.0																262.0	37.5	Strongly acid.	Brown..	Not formed.	85.7	......	
Daily av....		63.3	.....	1,700	1.020	....	....	5	.706	14.47	.611	.211	1.165	.836	.058	.271	15.2	1.50	170.3	30.1	....	....	....	82.3	.0061	2.00
92	Dec. 20	63.5	1.0	1,845	1.021	Moderate.	Slight...	7	.920	14.97	.658	.217	1.230	.822	.046	.362	18.5	1.40	128.0	25.2	Slightly acid.	Charcoal	Soft formed.	80.3	......	14.5
93	Dec. 21	63.2	1.0																106.0	24.0	Slightly alkaline.	Brown..	Hard....	77.4	......	
94	Dec. 22	63.0	1.0	1,328	1.025	Slight to moderate.	Slight to moderate.	10	.782	12.28	.568	.166	.997	.741	.039	.217	9.85	1.53	94.5	22.8	Alkaline	Dark brown.	Well formed.	71.7	......	
95	Dec. 23	62.8	1.0																198.5	33.0	Slightly acid.	Light brown.	Little formed.	83.4	.0092	
96	Dec. 24	62.8	1.0	1,482	1.026	...do.....	...do.....	8	.658	13.32	.560	.225	1.109	.778	.059	.272	15.7	1.07	227.5	46.8	Acid....	Brown..	Soft formed.	79.4	......	
97	Dec. 25	......	1.0																0	.....	....	....	....	.....	......	
98	Dec. 26	......	1.0																145.5	35.4	Neutral.	Dark brown.	Hard....	75.8	.0036	
	Dec. 27	......	......	......	......	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	154.0	33.3	Slightly acid.	Brown..	Slightly formed.	78.4	......	
Daily av....		63.1	.....	1,542	1.024	....	....	8	.768	13.49	.590	.206	1.112	.780	.050	.282	14.8	1.30	131.8	27.6	....	....	....	79.1	.0064	2.07

BALANCE, DEC. 20–26.

		Grams.
Nitrogen in food		132.21
Nitrogen in excreta:		
Urine	94.46	
Feces	14.50	
		108.96
Nitrogen balance		+23.25

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N.—Continued.

FIFTH SACCHARIN PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1909.	*Kilos.*	*Gms.*	*c. c.*					*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
99	Dec. 27	63.2	1.5																.....	.....	.....	.....	.....	.....	......	
100	Dec. 28	63.5	1.5	1,900	1.020	Moderate to strong.	Slight to moderate.	30	0.878	14.05	0.652	0.192	1.180	0.826	0.060	0.294	19.4	1.30	238.5	44.4	Neutral.	Charcoal	Well formed.	81.4	......	
101	Dec. 29	63.2	1.5	2,125	1.018	Moderate.	Moderate.	50	1.222	17.38	.715	.197	1.473	.984	.069	.420	14.9	2.03	183.0	33.9	Slightly alkaline.	Brown..	...do....	81.5	......	
102	Dec. 30	63.3	1.5																175.0	36.6	...do....	...do....	...do....	79.1	0.0037	
103	Dec. 31	63.0	1.5																158.5	27.6	...do....	...do....	Soft.....	82.6	......	14.48
	1910.																									
104	Jan. 1	......	1.5	1,482	1.023	Slight to moderate.	Slight to moderate.	25	1.058	12.59	.477	.178	1.043	.700	.047	.296	15.1	1.23	280.5	47.4	Strongly acid.	Dark brown.	...do....	83.1	......	
105	Jan. 2	......	1.5																198.5	32.7	Slightly acid.	Brown..	Little formed.	83.5	.0065	
Daily av....		63.3	.....	1,785	1.021	....	....	34	1.054	14.38	.595	.187	1.205	.817	.057	.331	16.3	1.48	205.7	37.1	....	....	....	81.9	.0051	2.07
106	Jan. 3	62.9	1.5																173.0	35.7	Slightly acid.	Charcoal.	Well formed.	79.4	......	
107	Jan. 4	63.0	1.5	2,158	1.019	Moderate.	Slight...	45	1.225	16.64	.740	.205	1.440	1.038	.076	.326	17.2	1.01	84.0	19.2	Slightly alkaline.	Brown..	...do....	77.2	......	
108	Jan. 5	63.0	1.5																283.5	42.0	Strongly acid.	...do....	Not formed.	85.2	......	
109	Jan. 6	63.5	1.5	1,120	1.023	Slight...	...do....	18	.803	11.36	.517	.204	.852	.607	.048	.197	9.40	1.21	158.5	27.9	Slightly acid.	Light brown.	Slightly formed.	82.4	.0058	13.46

110	Jan. 7	63.5	1.5																177.5	28.5	...do....	Brown..	Not formed.	84.0......		
111	Jan. 8	63.4	1.5	1,397	1.023	Slight to moderate.	..do.....	20	1.050	13.55	.782	.185	1.072	.744	.072	.256	11.2	1.03	90.5	21.0	Slightly alkaline.	...do.....	Well formed.	76.8......		
112	Jan. 9	......	1.5																204.5	35.4	...do	...do.....	Little formed.	82.7	.0088	
Daily av....		63.2	.....	1,535	1.022	....	....	26	1.029	13.81	.694	.196	1.114	.789	.066	.259	12.4	1.08	167.4	30.0	....	....	....	82.1	.0073	1.92
113	Jan. 10	63.3	1.5																122.0	27.0	Strongly acid.	Charcoal	Well formed.	77.9......		
114	Jan. 11	63.3	1.5	1,428	1.028	Slight...	Slight to moderate.	8	1.390	18.60	.822	.275	1.459	1.008	.085	.366	14.9	1.77	221.0	38.4	Slightly acid.	Brown..	Little formed.	82.6......		
115	Jan. 12	63.0	1.5																164.0	26.7	Acid....	Light brown.	Not formed.	83.7......		
116	Jan. 13	63.0	1.5	1,788	1.021	Slight to moderate.	Slight...	35	1.116	17.26	.702	.232	1.254	.960	.070	.224	14.6	1.77	156.5	27.6	Neutral.	...do.....	Soft formed.	82.4	.0038	
117	Jan. 14	63.0	1.5																132.5	25.8	Acid....	...do.....	Well formed.	80.6......		14.41
118	Jan. 15	63.3	1.5	1,197	1.021	Slight...	None....	10	.831	10.23	.461	.135	.869	.627	.048	.194	10.8	1.06	76.5	17.7	Neutral.	Brown..	Hard....	76.8......		
119	Jan. 16	......	1.5																253.5	47.7	Strongly acid	...do.....	Little formed.	81.2	.0094	
	Jan. 17	......	.....	.....	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	106.5	19.2	Slightly acid.	...do.....	....do....	82.0......		
Daily av....		63.2	.....	1,432	1.023	....	....	17	1.072	14.63	.633	.203	1.148	.831	.065	.252	13.1	1.47	154.1	28.8	....	....	....	81.4	.0066	2.06

BALANCE, JAN. 10–16.

		Grams.
Nitrogen in food		112.42
Nitrogen in excreta:		
Urine	102.41	
Feces	14.41	
		116.82
Nitrogen balance		—4.40

TABLE 76.—*Daily records of urine and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N—Continued.

FIFTH SACCHARIN PERIOD—Continued.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indolacetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1910.	*Kilos.*	*Gms.*	*c. c.*					*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
120	Jan. 17	62.6	1.5																....	....	....	....	....	....	......	
121	Jan. 18	63.3	1.5	1,185	1.022	Slight...	Slight to moderate.	7	1.329	11.93	0.539	0.180	1.081	0.712	0.061	0.308	8.30	1.60	143.5	29.1	Slightly acid.	Charcoal	Slightly formed.	79.7	......	
122	Jan. 19	63.0	1.5																268.0	45.9	Acid....	Light brown.	Little formed.	82.9	......	
123	Jan. 20	63.5	1.5	1,785	1.020	...do.....	Slight...	35	1.303	14.31	.576	.178	1.224	.857	.062	.305	17.2	2.19	141.0	25.5	Neutral.	Brown..	Well formed.	81.9	0.0071	13.77
124	Jan. 21	63.3	1.5																106.0	24.3	...do.....	...do.....	...do.....	77.1	......	
125	Jan. 22	63.6	1.5	1,567	1.021	Slight to moderate.	..do.....	0	1.080	13.52	.648	.176	1.118	.745	.058	.315	11.0	1.58	384.5	51.6	Strongly acid.	Light brown.	Little formed.	86.6	......	
126	Jan. 23	.....	1.5																0	.....	....	....	....	....	.0104	
	Jan. 24	......	......	......	......	....	....	...	.....	......	.....	.....	.....	.....	.....	.....	.....	.....	215.0	41.4	Slightly acid.	Brown..	Soft formed.	80.3	......	
Daily av...		63.2	.....	1,520	1.021	....	....	12	1.215	13.29	.596	.178	1.138	.768	.060	.310	12.0	1.76	179.7	31.1	....	....	....	82.7	.0088	1.97
127	Jan. 24	63.5	1.5																.....	.....	....	....	....		......	
128	Jan. 25	63.0	1.5	1,425	1.020	Slight...	Slight...	7	1.319										155.0	25.8	Slightly alkaline.	Brown..	Well formed.	83.4	......	
129	Jan. 26	63.5	1.5																189.0	38.7	Acid....	...do.....	...do.....	79.5	......	
130	Jan. 27	63.7	1.5	1,805	1.019	...do.....	...do.....	25	1.150	14.98	.599	.190	1.313	.889	.048	.376	10.0	1.60	137.0	28.5	Neutral.	...do.....	...do.....	79.2	.0025	10.77
131	Jan. 28	63.3	1.5																198.0	42.3	Slightly alkaline.	...do.....	...do.....	78.7	......	
132	Jan. 29	63.5	1.5	1,683	1.022	Slight to moderate.	..do.....	50	1.170										108.5	22.5	Acid....	...do.....	...do.....	79.3	......	
133	Jan. 30	......	1.5																80.5	15.0	Strongly acid.	Light brown.	Little formed.	81.4	.0029	
Daily av..		63.5	....	1,644	1.021	....	....	31	1.207	14.98	.599	.190	1.313	.889	.048	.376	10.0	1.60	144.7	28.8	....	....	....	80.0	.0027	1.54

134	Jan. 31	63.7	1.5	1,855	1.019	Slight to moderate.	Slight...	80	1.418	17.90	.675	.230	1.433	1.017	.066	.350	13.5	1.62	254.0	40.8	Slightly alkaline.	Charcoal	Little formed.	83.9	......	
135	Feb. 1	63.5	1.5																0	......	....	....	....	......	......	
136	Feb. 2	63.3	1.5																307.0	57.6	Strongly acid.	Brown..	Little formed.	81.3	......	
137	Feb. 3	63.5	1.5	1,790	1.022	...do.....	Slight to moderate.	45	1.435	18.40	.779	.248	1.460	1.058	.071	.331	13.9	2.06	131.5	24.3	Slightly acid.	...do.....	...do.....	81.5	.0049	
138	Feb. 4	63.5	1.5																464.0	42.0	Acid....	Yellow..	Diarrheal..	90.9	......	14.9
139	Feb. 5	63.0	1.5	1,150	1.020	Slight...	Slight...	40	1.008	10.62	.653	.169	.853	.577	.052	.224	9.65	1.39	228.0	35.4	...do.....	Light brown.	Not formed.	84.5	......	
140	Feb. 6	......	1.5																201.5	35.1	...do.....	Brown..	Soft formed.	82.6	.0068	
	Daily av...	63.4	.....	1,534	1.020	....	....	53	1.247	14.92	.695	.209	1.192	.840	.061	.291	11.9	1.65	226.6	33.6	....	....	....	85.1	.0059	2.13

BALANCE, JAN. 31–FEB. 6.

		Grams.
Nitrogen in food		118.35
Nitrogen in excreta:		
Urine	104.46	
Feces	14.90	
		119.36
Nitrogen balance		—1.01

TABLE 76.—*Daily records of urine and and feces of the individual subjects, showing chemical composition, nitrogen balance, etc., throughout the experiment*—Continued.

Subject III N—Continued.

AFTER PERIOD.

Day of experiment.	Date.	Body weight.	Daily dose saccharin.	Urine. Average volume.	Specific gravity.	Aromatic oxy-acids.	Indol-acetic acid.	Indican (Fehling's solution=100).	Saccharin.	Total nitrogen.	Ammonia nitrogen.	Uric acid nitrogen.	Total sulphur.	Inorganic sulphur.	Ethereal sulphur.	Neutral sulphur.	Chlorine as NaCl.	Total acidity as oxalic acid.	Feces. Weight. Moist.	Weight. Air dry.	Reaction.	Color.	Consistence.	Water.	Hydrogen sulphide.	Total nitrogen.
	1910.	*Kilos.*	*Gm.*	*c. c.*					*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*Gms.*	*Gms.*	*Gms.*				*P.c.*	*Gm.*	*Gms.*
141	Feb. 7	63.0	0	1,240	1.024	Slight to moderate.	Moderate.	27	0.103	13.29	0.574	0.196	1.019	0.848	0.051	0.120	12.9	1.36	244.5	45.9	Slightly acid.	Dark brown.	Soft formed.	81.2	......	
142	Feb. 8	63.3	0																195.0	35.4	Acid....	Brown..	...do.....	81.9	......	
143	Feb. 9	63.3	0	1,445	1.021	Moderate.	Slight to moderate.	25	Tr'ce	14.40	.678	.209	1.009	.802	.073	.134	13.0	1.82	76.0	18.3	Slightly alkaline	Light brown.	Hard....	75.9	......	
144	Feb. 10	63.5	0																103.0	26.4	Acid....	Brown..	...do.....	74.4	......	15.2
145	Feb. 11	63.3	0	1,290	1.026	Slight...	...do.....	4	0	13.86	.606	.209	1.028	.840	.054	.134	14.2	1.70	275.0	54.0	...do.....	...do.....	Well formed.	80.3	0.0044	
146	Feb. 12	63.6	0																0	.....	....	....	....	....	......	
147	Feb. 13	......	0																380.5	66.9	Strongly acid.	Brown..	Well formed.	82.4	.0145	
Daily av...		63.3	.....	1,320	1.024	....	....	17	.015	13.85	.617	.205	1.020	.831	.059	.130	13.5	1.64	182.0	35.3	....	....	....	80.6	.0095	2.17
148	Feb. 14	63.7	0	1,435	1.021	Slight to moderate.	Slight...	0	.....	13.70	.624	.170	.992	.827	.049	.116	13.8	2.35	223.0	35.7	Slightly acid.	Brown..	Well formed.	84.0	......	
149	Feb. 15	63.7	0																201.5	38.7	Strongly acid.	Dark brown.	...do.....	80.7	......	
150	Feb. 16	63.5	0	1,340	1.021	Slight...	...do.....	0	.....	13.20	.517	.167	.950	.811	.044	.095	9.65	1.64	119.5	25.5	Neutral.	Brown..	...do.....	78.7	......	
151	Feb. 17	63.6	0																162.5	32.1	...do.....	Light brown.	...do.....	80.2	.0038	12.84

152	Feb. 18	63.5	0	1,487	1.022	Slight to moderate.	..do.....	0	.....	15.13	.677	.188	1.155	.955	.055	.145	15.2	1.69	185.0	32.4	Acid....	Brown..	Soft formed.	82.5	......	
153	Feb. 19	63.8	0																140.5	30.9	...do.....	...do.....	Hard....	78.0	......	
154	Feb. 20	......	0																184.0	27.3	Strongly acid.	Light brown.	Little formed.	85.2	.0075	
	Feb. 21	63.8	.....	.....	.....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....	.....	......	.....
	Daily av...	63.7	.....	1,430	1.021	....	....	0	.....	14.17	.616	.177	1.050	.878	.050	.122	13.2	1.86	173.7	31.8	....	....	....	81.7	.0057	1.83

BALANCE, FEB. 14-20.

		Grams.
Nitrogen in food		129.57
Nitrogen in excreta:		
Urine	99.19	
Feces	12.84	
		112.03
Nitrogen balance		+17.54

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910.*

Kind of food.	Subject I K.	Subject II O.	Subject III N.
September 8, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	164	50	....
Butter	50	8	....
Milk	301	63	....
Tea	181	....	....
Coffee	300	....	....
Sugar	85	17	....
Mashed potatoes	340	....	....
Corn flakes	15	....	....
Pork chops	55	....	....
Fried eggs	85	91	....
Breaded lamb chops	83	....	....
Sliced tomatoes	81	....	....
Peas	76	....	....
Noodle soup	163	....	....
Succotash	97	....	....
Beets	86	....	....
Pea soup	183	....	....
Ham	....	121	....
Boiled celery	....	175	....
Swiss cheese	....	24	....
Mustard	....	10	....
Rye bread	....	130	....
September 9, 1909.			
Bread	140	129	....
Butter	46	20	....
Milk	304	173	....
Tea	....	209	....
Coffee	414	368	....
Sugar	50	57	....
Mashed potatoes	156	....	....
Muskmelon	51	....	....
Corn flakes	30	....	....
Corn sirup	50	....	....
Pancakes	119	....	....
Apple pie	113	....	....
Bananas	85	....	....
Roast beef	81	....	....
Corn from cob	112	....	....
Farina soup	179	....	....
Boiled eggs	....	82	....
Rye bread	....	120	....
Ham	....	36	....
Swiss cheese	....	22	....
Mustard	....	10	....
Chopped beef	....	171	....
Creamed potatoes	....	275	....
Tomatoes	....	124	....
September 10, 1909.			
Bread	110	96	....
Butter	35	47	....
Milk	309	60	....
Tea	294	202	....
Coffee	127	426	....
Sugar	85	56	....
Mashed potatoes	119	....	....
Apple sauce	93	....	....
Corn flakes	16	....	....
Beefsteak	275	....	....
Pear	73	....	....
Succotash	81	....	....
Roast beef	63	....	....
Gravy	6	....	....
Tomato	153	....	....
Noodle soup	151	....	....
Clam chowder	197	....	....
Stewed onions	136	....	....
Peach	117	....	....
Cream	....	103	....
Boiled eggs	....	347	....
Fried tomatoes	....	258	....
Rolls	....	229	....
Preserved peaches	....	106	....

Kind of food.	Subject I K.	Subject II O.	Subject III N.
September 11, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	248	87	....
Butter	82	55	....
Milk	1,167	144	....
Tea	600	1,138	....
Coffee	453	....	....
Sugar	65	88	....
Fried potatoes	....	144	....
Corn flakes	17	....	....
Fried eggs	292	....	....
Pickles	90	....	....
Zwieback	66	....	....
Cream	....	115	....
Boiled eggs	....	204	....
Rolls	....	198	....
Mutton	....	151	....
Tomatoes	....	260	....
September 12, 1909.			
Butter	32	20	....
Milk	743	91	....
Tea	600	433	....
Coffee	400	407	....
Sugar	95	79	....
Boiled potatoes	....	120	....
Potatoes, creamed	....	263	....
Rye bread	36	....	....
Baked beans	200	....	....
Soup	480	....	....
Zwieback	53	....	....
Fried eggs	46	....	....
Sardines	28	....	....
Corn flakes	20	....	....
Toast	....	90	....
Cream	....	112	....
Mutton	....	99	....
Stewed tomatoes	....	125	....
Sliced tomatoes	....	191	....
Gravy	....	31	....
Peach	....	65	....
September 13, 1909.			
Bread	131	77	....
Butter	35	43	....
Milk	487	48	....
Tea	810	211	....
Coffee	280	424	....
Sugar	127	57	....
Corn flakes	30	....	....
Boiled eggs	115	211	....
Bananas	136	....	....
Pickles	59	....	....
Salmon	75	....	....
Peas	196	....	....
Vinegar	25	....	....
Cream	....	163	....
Rolls	....	179	....
Bacon	....	42	....
Mutton	....	70	....
Tomatoes	....	155	....
Rye bread	....	45	....
September 14, 1909.			
Bread	72	40	....
Butter	25	30	....
Milk	582	58	....
Tea	1,218	270	....
Coffee	300	419	....
Sugar	160	85	....
Fried potatoes	....	211	....
Corn flakes	39	....	....
Fried eggs	42	....	....
Bananas	119	....	....
Saratoga chips	49	....	....

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
September 14, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Ham	76	102	
Zwieback	38		
Peanut butter	20		
Pickles	75		
Steak	179		
Ice cream	216		
Cream		175	
Boiled eggs		82	
Rolls		183	
Chopped beef		265	
Tomatoes		125	
Apple sauce		147	
September 15, 1909.			
Bread	154	99	
Butter	34	45	
Milk	529	55	
Tea	1,253	205	
Coffee	300	397	
Sugar	165	56	
Fried potatoes and onions		180	
Corn flakes	36		
Saratoga chips	46		
Scrambled eggs	111		
Huckleberry pie	105		
Cream cheese	40		
Baked beans	112		
Lobster	66		
Olives	20		
Zwieback	26		
Cream		152	
Boiled eggs		75	
Rolls		205	
Liver bologna		85	
Beef bologna		105	
Tomatoes		140	
September 16, 1909.			
Bread	120	63	
Butter	30	51	
Milk	224	191	
Tea	1,088	215	
Coffee	304	404	
Sugar	93	59	
Creamed potatoes		240	
Crackers	87		
Hamburg steak	132		
Cream cheese	28		
Ham	56		
Peas	125		
Olives	25		
Boiled eggs		85	
Rolls		204	
Chopped beef		200	
Beef bologna		68	
Tomatoes		200	
Apple pie		148	
September 17, 1909.			
Bread	237	95	
Butter	82	51	
Milk	405	214	
Tea	932	185	
Coffee	278	376	
Sugar	136	63	
Fried potatoes		200	
Corn flakes	28		
Peanut butter	28		
Boiled eggs	70	74	
Steak	132		
Boiled potatoes	139		
Rolls		184	
Liver bologna		120	
Tomatoes		160	
Apple pie		176	
September 18, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	201	69	
Butter	60	45	
Milk	339	340	
Tea	1,045	648	
Coffee	170	385	
Sugar	152	99	
Boiled potatoes	153	144	
Corn flakes	46		
Boiled eggs	126	218	
Nabisco wafers	35		
Pork chops	83		
Rolls		186	
Liver bologna		126	
Tomatoes		100	
September 19, 1909.			
Bread	116	100	
Butter	35	24	
Milk	171	147	
Tea	1,083	430	
Coffee	294	192	
Sugar	141	64	
Boiled potatoes		220	
Salmon	200		
Peas	121		
Peaches	300		
Baked beans	132		
Cream		89	
Boiled eggs		132	
Sparerib		160	
Lamb		112	
Tomatoes		160	
Cabbage		160	
Cornstarch pudding		155	
September 20, 1909			
Bread	260	248	160
Butter	80	49	50
Milk	390	175	214
Tea	990	231	128
Coffee		256	181
Sugar	97	81	22
Boiled potatoes		200	80
Boiled eggs	210	84	
Steak	90		
Mutton		100	90
Veal		55	
Chopped beef		116	
Tomatoes		209	55
Cream of wheat		168	150
Carrots		88	100
Bananas		160	
Cocoa		252	
Ham			40
Beer			386
Cream cheese			15
September 21, 1909.			
Bread	152	181	193
Butter	40	48	46
Milk	325	203	109
Tea	802	197	
Coffee	303	182	353
Sugar	137	46	29
Creamed potatoes	138	151	
Boiled potatoes			182
Corn flakes	47		
Boiled beef	72		
Tomatoes, with bread	273		
Boiled eggs	49	71	162
Cheese cake	82		
Roast beef		226	138
Cream of wheat		193	
Peas		83	
Carrots			113

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
September 21, 1909—Con.	*Gms.*	*Gms.*	*Gms.*
Apples			38
Stewed tomatoes			57
Lamb			108
String beans			46
Onions			19
Gravy			19
Cranberries			58
Beer			193
September 22, 1909.			
Bread	89	164	152
Butter	25	36	42
Milk	250	247	471
Tea	942	227	100
Coffee	357	237	396
Sugar	23	30	43
Boiled potatoes		327	53
Rice			145
Fried sweet potatoes	298		
Boiled beef	208		
Rice soup	256		
French toast	169		
Boiled eggs		98	50
Veal		123	
Chopped beef		138	
Tomatoes		146	
Oatmeal		163	98
Cassava pudding		163	129
String beans		181	150
Vegetable soup		251	
Gravy			22
Ice cream			250
Ham			19
Lamb			91
Chicken			175
September 23, 1909.			
Bread	225	143	134
Butter	66	38	28
Milk	754	257	195
Tea	664		
Coffee	210	516	234
Sugar	10	23	15
Mashed potatoes	178		
Boiled potatoes		287	213
Rice	190		128
Steak	104	142	
Tomatoes, with bread	190		
Baked beans	234		
Coconut pie	97		
Boiled eggs		70	
Chopped beef		127	133
Onions		29	20
Turnips		132	146
Gravy		92	65
Rice pudding		120	
Bananas		104	72
Tomatoes		107	78
Cream of wheat			119
Cream cheese			15
Chicken			100
Caviar			6
Ice cream			125
September 24, 1909.			
Bread	222	203	64
Butter	50	46	19
Milk	626	222	139
Tea	654	206	
Coffee	302	390	579
Sugar	30	31	39
Fried potatoes	262	167	
Boiled potatoes			142
Corn flakes	35		
Pork chops	46		96
September 24, 1909—Con.	*Gms.*	*Gms.*	*Gms.*
Raw tomatoes	128		
Apple tart	75		
Doughnut	52		
Cake	73		
Boiled eggs		215	56
Boiled codfish		155	118
Sauce		53	45
Stewed tomatoes		87	90
Custard		89	60
Baked beans		184	
Celery		97	
Cream of wheat			136
Bananas			42
Rice pudding			154
Snow pudding			85
Sponge cake			138
Beer			190
September 25, 1909.			
Bread	339	223	87
Butter	50	56	33
Milk	250	274	558
Tea	742	548	
Coffee	300	403	609
Sugar		55	32
Boiled potatoes	141	223	152
Hominy			93
Fried eggs	46		
Doughnuts	45		
Currant jelly	25		
Pork chops	80		
Cream cheese	48		
Boiled eggs		68	92
Corned beef		152	97
Steak		77	
Cabbage		100	79
Custard		98	95
Coffee cake		53	122
Biscuits			33
String beans			67
Gravy			49
Sweet pickles			35
Rice pudding			103
Hamburg steak			89
September 26, 1909.			
Bread	168	97	215
Butter	80	24	44
Milk	152	343	33
Tea	900	416	
Coffee	344	614	529
Sugar	26	53	23
Roasted potatoes	178	140	83
Potato cakes	280		
Gravy	120		71
Peanut bar	33		
Muffins	66		
Chocolate cake	94		
Boiled eggs		107	
Bacon		30	
Mutton		153	
Ham		102	
Cabbage		148	
Creamed cabbage		260	
Tomatoes		263	64
Apple sauce		137	
Coffee cake		82	
Vegetable soup			422
Corn			39
Horse-radish sauce			22
Custard			36
Snow pudding			142
Celery			47
Sweet pickles			27
Brisket			77
Chopped beef			47

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
September 26, 1909—Con.	*Gms.*	*Gms.*	*Gms.*
Pork			4
Fish balls			96
Cheese			7
Cocoa			148
Grapes			115
September 27, 1909.			
Bread	134	108	212
Butter	93	20	41
Milk	100	76	334
Tea	685	250	
Coffee	366	199	698
Sugar			33
Fried potatoes	142		
Boiled potatoes		100	99
Muffins	262		
Pancakes	171		
Cream cheese	16		
Roast beef	74		96
Boiled eggs		141	49
Mutton		100	
Fried ham		99	
Creamed potatoes		256	
Peas		119	
Orange jelly		107	
Wheatena			178
Biscuits			37
Vegetable soup			145
Cucumbers			68
Cranberries			55
Snow pudding			65
Custard			31
Boiled beef			70
Sponge cake			51
Zwieback			24
Pears			71
September 28, 1909.			
Bread	164	170	85
Butter	60	52	22
Milk	270	230	383
Tea	724		
Coffee	304	536	405
Sugar	10	23	20
Fried potatoes	96	180	
Boiled potatoes		155	196
Muffins	114		
Corn flakes	44		
Steak	131		
Peas	111		
Omelet	51		
Chocolate éclair	149		
Boiled eggs		100	55
Chopped beef		122	110
Beef bologna		134	
String beans		100	123
Preserved cherries		126	107
Tomatoes		150	
Cream of wheat			139
Gravy			32
Pudding			111
Cake			57
Pork			33
Liver			118
Beer			193
September 29, 1909.			
Bread	328	148	206
Butter	82	39	51
Milk	355	338	455
Tea	760	195	
Coffee	305	387	622
Sugar	10	20	41
Boiled potatoes	112	449	156
Cream of wheat			130

Kind of food.	Subject I K.	Subject II O.	Subject III N.
September 29, 1909—Con.	*Gms.*	*Gms.*	*Gms.*
Corn flakes	48		
Dumpling	413		
Fried eggs	85		
Boiled beef	90		
Boiled eggs		85	
Veal		142	100
Chopped beef		168	
Peas		93	72
Cottage pudding		79	56
Vegetable soup		286	
Gravy			20
Cake			112
Turnip			217
Cream of Wheat pudding			88
Beef			26
Spareribs			142
September 30, 1909.			
Bread	221	142	205
Butter	70	51	51
Milk	303	302	505
Tea	780	196	151
Coffee	353	358	374
Sugar	10	23	37
Fried potatoes	173		
Boiled potatoes	182	304	67
Corn flakes	50		
Green corn	149		
Fried beef	84		
Pork chops	86		
Gravy	102	30	
Boiled eggs	46	69	
Boiled lamb		139	
Ham		100	56
Turnips		164	113
Cornstarch pudding		112	105
Cabbage		175	
Beef soup		150	
Crackers		20	
Bananas			85
Cream of wheat			127
Scrambled eggs			98
Biscuit			24
Apple sauce			128
Beets			91
Caviar			25
Mustard			1
Lettuce			55
Lamb chops			92
Ladies fingers			40
October 1, 1909.			
Bread	107	230	239
Butter	75	55	55
Milk	200	238	324
Tea	1,201	196	
Coffee		359	581
Sugar		22	32
Boiled potatoes	159	156	290
Scrambled eggs			96
Muffins	244		
Fried eggs	86		
Boiled eggs		197	
Fried ham	59		
Gravy	50		
Sardines	111		
Grapes	330		
Pound cake	52		
Codfish		144	124
Stewed tomatoes		100	75
Rennet		100	159
Baked beans		199	
Force			17
Rolls			80
Beets			55
Bologna			15

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
	Gms.	*Gms.*	*Gms.*
October 1, 1909—Contd.			
Cream puffs			63
Herring			68
Beer			190
October 2, 1909.			
Bread	418	103	100
Butter	95	27	40
Milk	258	296	458
Tea	1,043	175	
Coffee	380	398	555
Sugar	31	24	38
Boiled potatoes	197	340	166
Hominy			145
Grapes	101		
Rice	131		
Beef broth	435		
Boiled beef	142		
Cream cheese	40		
Boiled eggs		79	51
Corn beef		146	121
Sausage		123	
Cabbage		100	53
Cold slaw		60	
Wine jelly		111	120
Cornstarch pudding		170	
Cake		50	121
Graham bread			72
Biscuits			25
Vegetable soup			324
Lettuce			48
Rice pudding			127
Ginger bread			51
Ham			24
October 3, 1909.			
Bread	271	129	289
Butter	59	66	45
Milk	259	337	373
Tea		899	
Coffee	1,470	588	515
Sugar	30	69	32
Boiled potatoes	235	314	80
Force			49
Pancakes	253		
Gravy	160	34	
Roast beef	86	114	
Cream cheese	46		
Boiled eggs		96	
Bacon		52	
Mutton		178	
Apple sauce		166	66
Cake		45	
Cabbage		155	
Rice pudding			117
Grapes			108
Vegetable soup			342
String beans			50
Cucumbers			50
Caviar			5
Liver			90
Veal			55
Bologna			32
October 4, 1909.			
Bread	250	185	67
Butter	85	59	25
Milk	156	332	122
Tea	824	512	
Coffee	39	399	732
Sugar	11	30	31
Boiled potatoes	177	308	91
Fried potatoes	78		
Corn flakes	26		
Steak	145		
Cake	38		113
October 4, 1909—Contd.			
Beef	101	102	
Gravy	28		
Boiled eggs		90	54
Mutton		137	221
Apple pie		192	
Apple sauce		166	23
Tomatoes		109	
Custard		99	95
Carrots		141	71
Hominy			120
String beans			51
Rice			109
Baked apples			170
Pork			20
Spice cake			23
Pears			67
October 5, 1909.			
Bread	195	116	146
Butter	64	39	40
Milk	250	226	285
Tea	678	220	
Coffee	415	536	656
Sugar		19	23
Boiled potatoes	154	156	150
Liver	145		
Sweet potatoes	112		
Steak	110		
Peas	138		
Muffins	165		
Peaches	212		
Cake	57		86
Bacon	34	46	
Gravy	38	43	
Boiled eggs		204	56
Meat balls		95	127
Bologna		58	
Raw celery		35	38
Stewed celery		114	108
Sweet pickles		20	
Cranberries		23	41
Pancake		101	101
Popover			57
Cream of wheat			229
Cabbage			61
Sauce			75
Pickles			26
Pot roast			73
Beer			220
October 6, 1909.			
Bread	200	175	177
Butter	50	39	63
Milk	280	224	105
Tea	623	209	
Coffee	340	378	606
Sugar		19	11
Boiled potatoes		270	130
Force			165
Scrambled eggs	116		77
Boiled eggs		84	
Sweet potatoes	188		
Pork chops	92		
Rolls	91		
Doughnuts	33		
Veal		124	91
Meat balls		154	
Gravy		26	
Turnips		142	100
Rennet		108	115
Vegetable soup		126	287
Tomatoes		150	
Crackers		16	
Biscuits			24
Veal dressing			54
Celery			19

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 6, 1909—Contd.			
	Gms.	*Gms.*	*Gms.*
Grapes			15
Beets			43
Pickles			28
Onions			7
String beans			54
Steak			90
Zwieback			23
October 7, 1909.			
Bread	282	108	160
Butter	40	37	46
Milk	480	268	279
Tea	541	215	
Coffee	299	384	481
Sugar	16	40	19
Mashed potatoes	150		
Boiled potatoes		117	215
Steak	86		
Bread pudding	197		
Boiled eggs		82	43
Codfish		199	
Bologna sausage		55	
Lima beans		76	
Tomatoes		66	
Tapioca pudding		131	
Crackers		28	
Cream of wheat			147
Oranges			61
Sauce			58
Cabbage			60
Apple pudding			156
Hard sauce			52
Coffee bread			58
Creamed carrots			104
Gravy			32
Rice pudding			290
Beef			86
Boiled chicken			93
Beer			300
October 8, 1909.			
Bread	186	68	197
Butter	36	41	30
Milk	200	196	280
Tea	960	195	
Coffee	272	380	759
Sugar	27	19	26
Boiled potatoes		148	38
Force			17
Fried eggs	69		
Rolls	148		
Boiled beef	64		
Broth	126		
Noodles	509		
Cake	54		
Rye bread		47	
Boiled eggs		221	63
Veal		132	
Cabbage		86	
Apple pudding		153	
Hard sauce		32	
Apples		64	
Tomatoes		160	63
Oranges			55
Lima beans			56
Tapioca pudding			124
Beets			67
Hominy			86
Gravy			30
Pickles			17
Pancakes			92
Codfish			184
Lamb chops			44
Cranberries			51
Zwieback			25

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 9, 1909.			
	Gms.	*Gms.*	*Gms.*
Bread	116	129	126
Butter	40	37	33
Milk	100	239	458
Tea	1,252	217	
Coffee		384	559
Sugar	30	23	11
Fried potatoes	118		
Boiled potatoes		375	229
Biscuit	97		
Hamburg steak	214		
Coffee cake	43		
Hash	75		
Steak		151	
Boiled eggs		88	45
Corned beef		134	127
Cabbage		132	16
Bread pudding		143	107
Vegetable soup		253	195
Cream of wheat			113
Beets			87
Gravy			19
Rice pudding			101
Ice cream			109
Zwieback			27
Liver			117
Pork			25
October 10, 1909.			
Bread	193	50	150
Butter	40	21	22
Milk	360	398	135
Tea	960	209	151
Coffee	280	706	417
Sugar	64	82	14
Boiled potatoes		224	128
Coffee bread			54
Boiled eggs	80	82	
Bologna			25
Roast pork	151		
Sweet potatoes	172		
Cake	162	32	121
Bacon		50	
Mutton		169	
Crackers		16	11
Cauliflower		146	
Lettuce		87	72
Sweet oil		12	
Tomatoes		154	
Apple sauce		189	
Cheese			13
Tomato soup			126
Gravy			40
Pickles			15
Creamed carrots			135
Orange jelly			296
Anchovy			31
Roast beef			124
Beer			400
October 11, 1909.			
Bread	190	50	156
Butter	46	19	33
Milk	512	183	468
Tea	889	180	
Coffee	320		558
Sugar	20		20
Boiled potatoes		147	189
Cake	90		60
Roast pork	92		
Sweet potatoes	239		
Steak	63		
Lamb		104	120
Pot roast		104	
Lima beans		70	56
Gravy		92	50

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 11, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Cottage pudding		64	56
Soup		260	
Crackers		20	
Boiled celery			39
Tomatoes		130	
Scrambled eggs			87
Hominy			120
Pickles			20
Creamed carrots			56
Pears			120
Zwieback			26
Coffee bread			70
Pork			11
Roast beef			64
Macaroons			17
October 12, 1909.			
Bread	284	125	145
Butter	60	36	49
Milk	300	210	173
Tea	689	218	
Coffee	358	351	642
Sugar	30	20	19
Boiled potatoes		257	117
Coffee cake			34
Wheatena	213		153
Rice	316		
Broth	240		
Beef	126		
Lemon pie	120		
Sardines	111		
Boiled eggs		73	46
Chopped beef		157	195
Steak		157	
Succotash		114	136
Apple pie		94	96
Soup		266	240
Tomatoes		150	
Cheese			26
Oranges			74
Creamed celery			95
Raw celery			30
Sweet pickles			26
Custard			86
Floating island			17
Cake			94
Corn-beef hash			127
October 13, 1909.			
Bread	358	220	136
Butter	65	63	31
Milk	273	756	213
Tea	822	208	
Coffee	345	386	623
Sugar		20	24
Boiled potatoes	93	289	94
Shredded wheat			30
Wheatena	200		
Steak	230		
Sweet potatoes	256		
Peas	140		
Cake	41		
Mustard	2		
Boiled eggs		82	79
Mutton		119	101
Roast beef		130	
String beans		109	128
Rennet		108	110
Lima beans		100	
Cheese			10
Vegetable soup			143
Lettuce salad			40
Tomatoes			60
Cocoa			295
Ginger cake			71
October 13, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Pears			98
Coffee cake			59
Bologna			15
Anchovy			25
October 14, 1909.			
Bread	215	184	111
Butter	80	41	58
Milk	158	212	412
Tea	697	202	
Coffee	354	385	588
Sugar		19	19
Boiled potatoes	126	271	299
Herring			43
Wheatena	465		116
Mustard	3		
Pork	114		18
Sauerkraut	396		
Muffins	184		
Boiled eggs		85	
Veal		120	71
Roast beef		115	
Turnips		107	112
Gravy		16	19
Rice pudding		143	283
Sliced tomatoes		137	
Bologna sausage		31	
Vegetable soup		260	
Crackers		14	
Graham bread			30
Fried eggs			87
Biscuits			25
Zwieback			25
Cream puffs			60
October 15, 1909.			
Bread	188	112	102
Butter	83	47	41
Milk	100	285	330
Tea	681	208	
Coffee	400	391	435
Sugar		40	3
Boiled potatoes		288	75
Swedish bread			65
Muffins	215		
Wheatena	160		95
Sauerkraut	395		
Pork chops	90		
Dumpling	217		
Scrambled eggs	115		55
Boiled eggs		209	
Codfish		170	142
Lettuce		76	33
Ice cream		160	
Cake		63	41
Macaroni		120	
Succotash		67	72
Sauce		41	
Cottage pudding		113	
Orange			66
Macaroni and tomatoes			86
Apple pudding			118
Vegetable soup			176
Raw tomatoes			40
Beets			48
Cream cheese			15
Rice pudding			171
Bologna sausage			56
Zwieback			29
October 16, 1909.			
Bread	359	143	114
Butter	69	37	48
Milk	152	236	499

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 16, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Tea	784	212	....
Coffee	391	390	671
Sugar	....	21	18
Boiled potatoes	109	294	288
Swedish bread	....	....	23
Liver	79	....	148
Bacon	34	....	....
Gravy	26	52	30
Apple pie	228	....	....
Custard pie	107	....	....
Biscuits	65	....	....
Peanut brittle	86	....	....
Boiled eggs	....	93	....
Corn beef	....	111	147
Sausages	....	119	....
Cabbage	....	120	57
Rice pudding	....	142	297
Tomatoes	....	177	....
Shredded wheat	....	....	28
Fried eggs	....	....	47
Vegetable soup	....	....	168
Beets	....	....	64
Ice cream	....	....	40
Cake	....	....	35
Boiled pork	....	....	26
Beer	....	....	250
October 17, 1909.			
Bread	208	54	22
Butter	60	16	33
Milk	150	227	383
Tea	662	596	....
Coffee	348	378	787
Sugar	....	25	20
Mashed potatoes	190	....	....
Boiled potatoes	....	240	14
Roast beef	186	....	105
Gravy	100	....	....
Peas	144	....	....
Vinegar	3	....	....
Apple pie	245	....	....
Peanut brittle	44	....	....
Soft-boiled eggs	51	47	48
Ham	....	90	....
Bologna sausage	....	156	52
Bacon	....	33	....
Tomatoes	....	73	....
Cauliflower	....	151	168
Cake	....	66	80
Apple sauce	....	148	....
Swedish bread	....	....	53
Wheatena	....	....	140
Oranges	....	....	60
Grapes	....	....	17
Horse-radish	....	....	71
Cream cheese	....	....	14
Beets	....	....	86
Pancake	....	....	166
Cranberries	....	....	32
Anchovy	....	....	12
October 18, 1909.			
Bread	256	111	75
Butter	68	33	43
Milk	157	231	542
Tea	711	201	....
Coffee	343	360	652
Sugar	....	20	19
Boiled potatoes	....	244	201
Swedish bread	....	....	28
Apple pie	243	....	....
Mustard	7	....	....
Hash	420	....	....
Crackers	30	17	....
Cheese	30	....	....
October 18, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Cake	90	....	71
Boiled eggs	....	82	....
Lamb	....	120	180
Ham	....	171	....
Peas	....	97	64
Gravy	....	34	67
Farina pudding	....	119	83
Hard sauce	....	36	124
Soup	....	268	....
Cabbage	....	162	....
Wheatena	....	....	116
Fried eggs	....	....	53
Cabbage soup	....	....	208
Cranberries	....	....	60
Boiled pork	....	....	12
October 19, 1909.			
Bread	201	56	117
Butter	40	46	48
Milk	251	197	244
Tea	715	224	....
Coffee	387	419	601
Sugar	10	18	16
Boiled potatoes	....	66	251
Swedish bread	....	....	33
Oatmeal	284	....	....
Hamburg steak	209	....	....
Macaroni	331	....	....
Lemon pie	272	....	....
Omelet	101	....	....
Peaches	205	....	....
Boiled eggs	....	82	61
Pot roast	....	145	91
Bologna sausage	....	122	....
Gravy	....	38	97
Carrots	....	100	111
Cauliflower	....	107	103
Rennet	....	102	104
Rolls	....	203	....
Wheatena	....	....	133
Coffee cake	....	....	85
Beets	....	....	43
Pancake	....	....	116
Cranberries	....	....	34
Herring	....	....	45
October 20, 1909.			
Bread	325	115	61
Butter	78	36	29
Milk	255	189	338
Tea	729	215	....
Coffee	367	395	501
Sugar	10	22	5
Boiled potatoes	....	183	51
Shredded wheat	....	....	21
Oatmeal	334	....	....
Dumpling	115	....	....
Beef broth	102	....	....
Beef	112	135	....
Mustard	14	....	....
Crackers	33	17	....
Hash	289	....	....
Boiled eggs	....	96	....
Veal	....	144	118
Lima beans	....	113	122
Gravy	....	32	68
Apple sauce	....	137	152
String beans	....	71	64
Vegetable soup	....	252	....
Creamed eggs	....	....	78
Bananas	....	....	84
Creamed potatoes	....	....	85
Rice pudding	....	....	124
Coffee cake	....	....	63
Pork chops	....	....	95

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 21, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	236	127	119
Butter	102	37	48
Milk	154	325	408
Tea	1,057	214	....
Coffee	....	391	462
Sugar	32	20	6
Boiled potatoes	133	269	89
Wheatena	....	....	112
Liver	131	....	....
Bacon	51	....	....
French toast	312	....	....
Cakes	43	....	....
Lemonade	323	....	....
Boiled eggs	....	76	....
Lamb	....	115	76
Spare ribs	....	185	....
String beans	....	60	62
Cottage pudding	....	79	77
Cabbage	....	170	....
Vegetable soup	....	248	....
Crackers	....	17	....
Scrambled eggs	....	....	72
Lima beans	....	....	42
Mashed potatoes	....	....	146
Gravy	....	....	45
Rice pudding	....	....	136
Pastry cake	....	....	102
Lamb chops	....	....	92
Beer	....	....	186
October 22, 1909.			
Bread	221	121	120
Butter	59	32	47
Milk	260	210	414
Tea	684	202	....
Coffee	344	384	610
Sugar	30	23	23
Boiled potatoes	....	114	230
Swedish bread	....	....	18
Rolls	149	....	....
Steak	156	....	....
Potatoes	304	....	....
Raw eggs	98	....	....
Boiled eggs	....	214	195
Codfish	....	177	128
Stewed tomatoes	....	80	70
Rice pudding	....	130	107
Macaroni	....	114	75
Shredded wheat	....	....	24
String beans	....	....	66
Coffee bread	....	....	112
Gravy	....	....	59
Fried onions	....	....	14
Baked apple	....	....	122
Chopped beef	....	....	91
October 23, 1909.			
Bread	434	121	143
Butter	91	37	40
Milk	212	137	164
Tea	348	198	....
Coffee	650	114	575
Sugar	....	23	17
Boiled potatoes	179	135	91
Fried potatoes	....	91	....
Pork chops	104	....	....
Baked beans	273	....	....
Vinegar	10	....	....
Fat	32	....	....
Mustard	10	....	....
Boiled eggs	....	94	....
Corn beef	....	117	93
Sausages	....	118	29
Cabbage	....	100	89
Tapioca pudding	....	79	....
Scrambled eggs	....	5	84
October 23, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Wheatena	....	....	120
Orange	....	....	50
Bread pudding	....	....	122
Raw celery	....	....	33
Soup	....	....	224
Cocoa	....	....	162
Coffee cake	....	....	42
Pastry, cake, and cream	....	....	124
October 24, 1909.			
Bread	174	93	75
Butter	40	29	28
Milk	171	596	79
Tea	915	402	....
Coffee	....	580	720
Sugar	....	60	7
Boiled potatoes	194	213	....
Gravy	104	....	72
Veal	154	....	....
Veal dressing	194	....	....
Mustard	10	....	....
Baked beans	266	....	....
Vinegar	20	....	....
Boiled eggs	....	79	....
Bacon	....	51	....
Ham	....	220	....
Cabbage	....	258	....
Cake	....	63	109
Swedish bread	....	....	31
Coffee cake	....	....	131
Bouillon	....	....	138
Sweet pickles	....	....	34
Creamed carrots	....	....	110
Baked potatoes	....	....	85
Baked custard	....	....	202
Hominy	....	....	145
Popover	....	....	85
Soup	....	....	169
Pot roast	....	....	95
Sausage	....	....	54
October 25, 1909.			
Bread	400	96	154
Butter	50	32	63
Milk	205	277	334
Tea	695	199	....
Coffee	392	401	571
Sugar	12	20	26
Boiled potatoes	314	200	116
Onions	....	....	27
Oatmeal	216	....	....
Beefsteak	110	....	100
Cheese	32	....	....
Mustard	7	....	....
Frankfort sausage	132	....	....
Boiled eggs	....	86	94
Lamb	....	152	104
Ham	....	117	....
Turnips	....	147	135
Jelly	....	160	143
Baked beans	....	173	....
Gravy	....	....	36
Coffee cake	....	....	58
Prunes	....	....	100
Layer cake	....	....	62
October 26, 1909.			
Bread	378	118	59
Butter	100	46	31
Milk	204	227	700
Tea	698	196	....
Coffee	553	382	668
Sugar	25	27	55
Boiled potatoes	252	250	146
Graham bread	....	....	70

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 26, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Pork	192		
Mustard	14		
Sauerkraut	221		
Peanut butter	93		
Boiled eggs	86	89	
Hamburg steak		183	158
Chopped beef		266	
String beans		95	74
Rice pudding		140	
Orange sauce		49	
Soup		159	
Crackers		18	
Gravy		24	
Scrambled eggs			144
Force			35
Orange sauce			39
Farina pudding			131
Coffee cake			104
Lettuce salad			57
Sausage			38
Bluefish			100
October 27, 1909.			
Bread	297	111	94
Butter	73	35	41
Milk	340	279	195
Tea	620	216	
Coffee	308	390	739
Sugar	20	20	15
Boiled potatoes		487	64
Creamed potatoes			142
Hamburg steak	199		
Mustard	16		
Macaroni	417		
Scallops	155		
Buns	118		
Lemonade	212		
Boiled eggs		84	
Veal		126	128
Mutton		98	
Carrots		190	168
Gravy		20	23
Rice pudding		163	132
Cabbage		165	
Toast			25
Force			14
Scrambled eggs			78
Biscuits			35
Ginger bread			60
Layer cake			107
Ham			70
Bacon			6
October 28, 1909.			
Bread	397	116	166
Butter	110	33	47
Milk	300	194	367
Tea	619	214	
Coffee	302	393	723
Sugar		20	21
Boiled potatoes	280	125	165
Force			16
Wheatena	236		
Bacon	23		
Gravy	145	32	
Liver	92		
Fried eggs	96		
Boiled eggs		86	
Chopped beef		175	
Steak		119	
Vegetable soup		243	
Crackers		58	
Fried onions		100	
Soup		228	
Rennet		88	110
Pancake			132
October 28, 1909—Contd.			
Cranberries			30
Cabbage			96
Coffee cake			153
Mixed salad			160
Grapes			40
Mutton			73
Ham			104
October 29, 1909.			
Bread	434	123	152
Butter	110	48	59
Milk	120	262	502
Tea	732	206	
Coffee	291	385	540
Sugar	10	20	15
Boiled potatoes	275	220	49
Toast			22
Wheatena	187		
Codfish	144	155	147
Lobster salad	48		
Boiled eggs	61	224	47
Cottage pudding		54	71
Stewed tomatoes		117	99
Sweet potatoes		146	81
Oatmeal			194
Cheese			27
Beets			41
Cranberries			31
Pancake			108
Baked beans			145
Ice cream			249
Cookies			21
Spiced herring			16
Pork			27
October 30, 1909.			
Bread	495	98	127
Butter	111	32	31
Milk	160	218	125
Tea	924	215	
Coffee	330	401	571
Sugar		20	11
Boiled potatoes	224	135	81
Oatmeal			151
Wheatena	277		
Gravy	160		
Roast beef	161		
Smelts	54		
Dressing	40		
Bread pudding	152		
Boiled eggs		84	
Corned beef		118	112
Sausage		207	
Cabbage		109	76
Turnips		105	72
Custard		103	148
Soup		243	
Crackers		20	
Tomatoes		141	
Fried eggs			48
Baked beans			199
Zwieback			13
Cookies			21
Boiled pork			75
October 31, 1909.			
Bread	210	74	30
Butter	65	15	12
Milk	120	336	459
Tea	967	643	
Coffee	326	355	843
Sugar	30	40	36
Boiled potatoes	195	175	108
Sweet potatoes			208
Wheatena	161		

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
October 31, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Noodles	268		
Broth	490		
Beef	88	122	
Mustard	7		
Grapes	344		
Crackers	65		
Lobster	51		
Boiled eggs		91	51
Bacon		52	
Bologna sausage		160	
Orange		135	65
String beans		84	52
Gravy		20	
Lettuce		71	
Swedish bread		30	
Oatmeal			121
Popover			105
Gravy and stuffing			77
Baked beans			64
Apple sauce			126
Strawberry jelly			150
Cookies			11
Layer cake			60
Zwieback			65
Roast chicken			114
Pork			40
Spiced herring			22
November 1, 1909.			
Bread	323	179	159
Butter	110	41	50
Milk	120	203	517
Tea	940	208	
Coffee	335	245	612
Sugar	30	20	18
Boiled potatoes	172	106	125
Grapes	319		
Wheatena	269		
Liver	110		
Bacon	57		
Hash	47		
Bananas	67		
Noodles	73		
Lamb		170	124
Sausage		189	
Succotash		110	87
Pumpkin pie		130	185
Oranges			48
Force			18
Scrambled eggs			94
Gravy			37
Mixed salad			134
Prunes			98
Coffee cake			58
Zwieback			18
Cookies			22
Bacon			9
Roast beef			78
November 2, 1909.			
Bread	367	171	113
Butter	100	44	43
Milk	120	199	370
Tea	659	267	
Coffee	312	389	657
Sugar		45	19
Boiled potatoes	190	284	118
Swedish bread			33
Hamburg steak	164		
Crullers	81		
Buns	58		
Boiled eggs		84	10
Pot roast		80	108
Steak		116	
Cabbage		138	118
November 2, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Gravy		36	50
Rennet		93	98
Oatmeal			138
Celery			30
Cheese			17
Beets			72
Bologna sausage			15
Baked beans			218
Cookies			30
Coffee cake			85
Bacon			10
Spiced herring			31
November 3, 1909.			
Bread	253	172	67
Butter	80	44	59
Milk	150	280	468
Tea	773	198	
Coffee	380	391	711
Sugar		20	245
Boiled potatoes	222	148	101
Toast			36
Rolls	50		
Corned beef	172		
Vinegar	30		
Cabbage	350		
Broth	155		
Omelet	90		
Sponge cake	60		
Grapes	148		
Boiled eggs		74	45
Veal		125	194
Steak		200	
Turnips		144	156
Gravy		24	19
Cornstarch pudding		112	113
Soup		260	
Crackers		20	
Graham bread			54
Oatmeal			138
Potato salad			91
Coffee cake			75
Zwieback			21
Cookies			17
November 4, 1909.			
Bread	321	168	32
Butter	80	43	44
Milk	150	665	354
Tea	805	205	
Coffee	384	396	670
Sugar		20	24
Boiled potatoes	205	295	77
Fried potatoes			89
Pork chops	137		
Cabbage	429		
Lobster	173		
Fried eggs	86		46
Boiled eggs		88	
Headcheese		80	
Beef bologna sausage		177	
Lamb		95	175
Gravy		40	
Apple sauce		196	
Lima beans		73	43
Pumpkin pie		179	170
Graham bread			58
Toast			36
Orange			80
Force			22
Coffee cake			130
Cookies			16
Bacon			10
Chicken			42
Fried cornmeal			385

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 5, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	436	206	122
Butter	122	51	63
Milk	150	191	246
Tea	731	210	
Coffee	369	378	582
Sugar		20	21
Boiled potatoes	201	132	165
Swedish bread			29
Smelts	175		
Wheatena	335		
Salad dressing	40		
Boiled eggs	91	213	
Codfish		165	83
Stewed tomatoes		103	88
Sauce		48	49
Rice pudding		283	151
Banana			102
Oatmeal			158
Scrambled eggs			72
Beets			46
Buckwheat cake			116
Sirup			44
Lemon pie			94
Coffee cake			85
Apple cake			71
Bacon			12
Herring			21
Sausage			43
November 6, 1909.			
Bread	366	198	92
Butter	94	46	59
Milk	200	267	180
Tea	768	213	
Coffee	414	263	320
Sugar	10	28	20
French fried potatoes	164		
Boiled potatoes		125	146
Wheatena	300		
Steak	206		
Boiled eggs		109	49
Corn beef		130	111
Smelts		257	
Cabbage		80	100
Cottage pudding		57	
Oatmeal			155
Raspberry jelly			128
Gravy			19
String beans			58
Baked apple			128
Coffee cake			50
Orange layer cake			102
Liver			108
Bacon			13
Beer			190
November 7, 1909.			
Bread	341	133	132
Butter	84	32	54
Milk	150	271	43
Tea	735	573	141
Coffee	383	368	607
Sugar		61	26
Boiled potatoes	126	271	126
Fried potatoes			73
Wheatena	212		
Roast beef	180	238	134
Turnips	221		
Gravy	26		69
Smelts	77		
Vinegar	18		
Boiled eggs		84	
Baked beans		105	
Orange		168	
Toast			69
Vegetable soup			232
November 7, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Pickles			20
Carrots			129
Lemon pie			67
Tomatoes			83
Baked apples			124
Orange layer cake			110
Coffee cake			94
Cookies			26
Spiced herring			22
Bologna sausage			16
Beer			190
November 8, 1909.			
Bread	257	172	159
Butter	80	34	47
Milk	100	226	444
Tea	980	187	
Coffee		350	652
Sugar	20	20	18
Boiled potatoes	272	127	123
Fried potatoes		89	72
Lobster	289		
Pear	139		
Ham			47
Boiled eggs	50	88	44
Veal		144	
Roast beef	163	80	92
Turnips		130	188
Cottage pudding		64	55
Oranges			103
Cream of wheat			148
Fried onions			31
Pumpkin pie			118
Gingerbread			50
Coffee cake			45
Orange layer cake			48
Mutton			94
November 9, 1909.			
Bread	500	179	85
Butter	130	55	39
Milk	398	230	348
Tea	793	204	
Coffee	362	368	715
Sugar	10	20	18
Boiled potatoes	181	152	91
Fried potatoes			70
Wheatena	221		
Bacon	71		
Liver	182		
Boiled eggs	44	96	47
Mutton		165	
Spareribs		138	
Peas		100	119
Rennet		112	202
Currant jelly		17	290
Cabbage		137	
Graham bread			46
Orange			105
Cream of wheat			129
Coffee cake			47
Cookies			20
Ham			43
Hamburg steak			185
Roast beef			72
November 10, 1909.			
Bread	348	93	131
Butter	100	24	58
Milk	150	168	352
Tea	1,024	206	
Coffee	359	39	677
Sugar	30	20	20
Boiled potatoes	164	148	83
Fried potatoes			74

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 10, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Wheatena	223		
Noodles	396		
Broth	277		
Mustard	12		
Beef	127		
Hash	187		
Boiled eggs		91	
Veal		196	
String beans		39	
Gravy		17	
Rice pudding		117	118
Soup		235	
Crackers		15	38
Graham bread			37
Cream of wheat			163
Scrambled eggs			75
Carrots			168
Zwieback			21
Cookies			16
Bacon			14
Veal			84
Meat balls			72
November 11, 1909.			
Bread	290	137	145
Butter	80	39	40
Milk	150	196	140
Tea	767	199	
Coffee	382	400	550
Sugar		20	10
Boiled potatoes	159	117	83
Cream of wheat			120
Wheatena	299		
Hamburg steak	157		
Fried eggs	86		
Boiled eggs		73	77
Mutton		126	
Chopped beef		208	
Succotash		92	83
Macaroni		76	
Pumpkin pie		91	164
Soup		235	
Fried onions		87	
Crackers		20	
Noodles			104
Baked beans			161
Coffee cake			72
Veal			84
Bologna sausage			75
Cream cheese			17
November 12, 1909.			
Bread	193	177	82
Butter	65	53	58
Milk	150	257	444
Tea	712	194	
Coffee	361	392	603
Sugar		20	37
Boiled potatoes	180	170	121
Graham bread			63
Wheatena	276		
Scallops	164		
Grape juice	407		
Smelts	129		
Boiled eggs		174	
Codfish		166	169
Stewed tomatoes		115	
Bread pudding		144	138
Apple fritters		222	
Rye bread			57
Scrambled eggs			82
Cream of wheat			138
Corn bread			77
Tomatoes			102
Baked apples			124
Coffee bread			51

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 12, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Bacon			26
Bologna sausage			69
Cream cheese			15
November 13, 1909.			
Bread	282	109	114
Butter	84	33	40
Milk	500	313	204
Tea	1,132	196	
Coffee	397	414	735
Sugar	31	40	42
Boiled potatoes	161	237	293
Cream of wheat			150
Steak	186		
Sausage	195	173	
Chili sauce	53		
Sugar	31		
Boiled eggs		78	79
Corn beef		129	115
Peas		116	
Cabbage		117	69
Cornstarch pudding		139	120
Zwieback			31
Turnip			101
Water cress			30
Rice pudding			172
Ice cream			163
Spice cake			40
Broiled chicken			102
Beer			190
November 14, 1909.			
Bread		82	121
Butter	42	19	25
Milk	150	163	169
Tea	742	635	
Coffee	404	379	765
Sugar		20	6
Boiled potatoes	166	242	118
Muffins	204		
Smelts	84		
Roast pork	195		176
Sauerkraut	309		
Elderberry pie	139		
Apple butter	58		
Leber wurst	62		
Boiled eggs		84	45
Bacon		65	
Fresh ham		158	31
Kale		169	
Gravy		80	
Peas		105	
Apple sauce		173	
Cake		83	
Popover			57
Cream of wheat			163
Orange			61
Pickles			21
Celery			38
Parsnips			71
Coffee cake			64
Spice cake			49
Strawberry jelly			141
Cocoa			136
Pancake			98
Cranberries			20
Gravy			75
Beer			190
Water cress			14
November 15, 1909.			
Bread	372	58	118
Butter	90	24	38
Milk	150	197	345
Tea	693	202	

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 15, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Coffee	375	402	767
Sugar	90	20	21
Boiled potatoes	189	130	85
Apple butter	60	....	....
Sausage	137	....	....
Gravy	33	....	....
Potato cake	150	....	....
Elderberry pie	284	....	....
Graham bread	64	....	....
Boiled eggs	....	98	....
Lamb	....	156	124
Corned beef	....	137	....
Turnips	....	105	....
Rice pudding	....	144	130
Cabbage	....	298	....
Cream of wheat	....	....	131
Omelet	....	....	80
Carrots	....	....	245
Vegetable salad	....	....	115
Prunes	....	....	110
Pancake	....	....	81
Coffee cake	....	....	71
Steak	....	....	100
Bacon	....	....	15
November 16, 1909.			
Bread	132	167	140
Butter	30	49	36
Milk	139	352	426
Tea	731	483	....
Coffee	388	393	632
Sugar	90	40	46
Boiled potatoes	202	274	226
Apple butter	93	....	....
Biscuit	95	....	....
Bacon	49	....	....
Liver	117	....	70
Fried eggs	84	....	....
Boiled eggs	....	90	44
Hamburg steak	....	105	77
Pot roast	....	125	99
Apple sauce	....	165	141
Lima beans	....	69	39
White turnips	....	52	62
Gravy	....	68	48
Cottage pudding	....	75	74
Apple pie	....	169	....
Shredded wheat	....	....	28
Coffee cake	....	....	125
Pancake	....	....	70
November 17, 1909.			
Bread	69	102	164
Butter	30	33	63
Milk	110	250	410
Tea	728	211	....
Coffee	763	398	623
Sugar	90	20	39
Boiled potatoes	119	166	97
Muffins	248	....	....
Steak	132	....	....
Chowchow	101	....	....
Apple butter	84	....	....
Boiled eggs	....	90	....
Veal	....	136	86
Chopped beef	....	211	....
Gravy	....	38	41
Turnips	....	151	147
Farina pudding	....	110	117
Soup	....	261	....
Crackers	....	20	....
Fried onions	....	174	....
Shredded wheat	....	....	29
Scrambled eggs	....	....	99
Sweet potatoes	....	....	71
November 17, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Salad	....	....	41
Rice	....	....	54
Coffee cake	....	....	151
Bacon	....	....	15
Ham	....	....	48
November 18, 1909.			
Bread	380	98	145
Butter	60	37	32
Milk	200	192	144
Tea	712	197	....
Coffee	320	380	620
Sugar	96	20	35
Boiled potatoes	175	239	202
Hamburg steak	178	....	....
Chowchow	59	....	....
Apple butter	65	....	....
Hash	198	....	....
Boiled eggs	....	88	....
Sparerib	....	188	147
Ham	....	101	....
Cabbage	....	120	94
Custard	....	135	130
Spinach	....	139	....
Soup	....	160	237
Crackers	....	8	....
Wheatena	....	....	136
Fried eggs	....	....	46
Plain salad	....	....	73
Cream cheese	....	....	10
Pancake	....	....	100
Cranberries	....	....	28
Cake	....	....	101
Coffee cake	....	....	58
Bacon	....	....	16
Chops	....	....	52
November 19, 1909.			
Bread	501	109	99
Butter	84	35	44
Milk	200	246	176
Tea	764	195	....
Coffee	340	607	919
Sugar	104	20	75
Boiled potatoes	139	239	93
Oatmeal	195	....	....
Sausage	127	....	....
Chili sauce	34	....	....
Potato pancake	254	....	....
Boiled eggs	....	99	....
Smelts	....	162	....
Codfish	....	160	123
Baked beans	....	113	....
Macaroni	....	127	....
Spinach	....	135	113
Fish sauce	....	43	....
Bread pudding	....	148	....
Orange	....	....	20
Wheatena	....	....	136
Scrambled eggs	....	....	87
Gravy	....	....	47
Rice	....	....	122
Stewed celery	....	....	102
Rice pancake	....	....	134
Crackers	....	....	32
Cranberries	....	....	38
Cake	....	....	113
Ham	....	....	18
Chicken	....	....	135
November 20, 1909.			
Bread	185	123	132
Butter	30	36	42
Milk	200	249	209

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 20, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Tea	697	219	
Coffee	381	395	159
Sugar	95	22	25
Boiled potatoes	359	197	104
Oatmeal	267		
Pork	243		
Sauerkraut	276		
Chili sauce	31		
Apple butter	41		
Boiled eggs		98	
Corned beef		114	107
Sausage		123	
Cabbage		99	108
Farina pudding		170	107
Lettuce		40	45
Shredded wheat			28
Scrambled eggs			75
Bouillon			193
Cheese			7
Rice pancake			109
Cranberries			31
Ham			29
Chicken			76
November 21, 1909.			
Bread	98	76	87
Butter	66	19	19
Milk	150	302	58
Tea	747	213	
Coffee	376	220	592
Sugar	93	40	38
Boiled potatoes	137	182	
Oatmeal pancakes	358		
Cream gravy	195		
Dressing	196		
Veal	135		
Canned plums	115		
Boiled eggs		79	
Liver bologna sausage		106	
Mutton		87	
Turnips		160	
Gravy		36	70
Apple sauce		190	
Cake		83	135
Carrots			152
Baked potatoes			89
Soup			189
Pickles			15
Beet salad			126
Cocoa			141
Raspberry jelly			148
Pot roast			130
November 22, 1909.			
Bread	86	218	87
Butter	63	34	48
Milk	250	255	354
Tea	1,030	445	
Coffee	240	392	515
Sugar	124	40	23
Boiled potatoes	324	276	81
Oatmeal	326		
Tomatoes	91		
Smelts	182		
Sausage	98		
Cake	91		
Boiled eggs		99	
Lamb		120	97
Ham		58	
Steak		108	
String beans		187	73
Sweet potatoes		99	110
Sauce, apple		50	135
Rice pudding		229	142
Graham			66
Wheatena			120
Fried eggs			43

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 22, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Gravy			44
Fried potatoes			96
Zwieback			48
Bacon			16
Hamburg steak			115
November 23, 1909.			
Bread	265	55	89
Butter	60	15	65
Milk	150	270	355
Tea	728	195	
Coffee	328	407	625
Sugar	100	40	38
Boiled potatoes	173	133	108
Liver	138		
Bacon	28		18
Gravy	80		18
Boiled eggs	98	89	
Beef		263	
Baked beans		169	
Sauce		51	
Soup		259	
Crackers		20	
Lima beans		66	
Apple pie		121	136
Rennet		108	
Cake		50	
Graham bread			80
Shredded wheat			28
Scrambled eggs			90
Banana			75
Creamed potatoes			136
Prunes			101
Rice in milk			127
Orange layer cake			48
Coffee cake			42
Zwieback			36
Pot roast			105
Ham			49
November 24, 1909.			
Bread		111	92
Butter	40	28	35
Milk	200	580	447
Tea	997	225	
Coffee	385	432	423
Sugar	114	20	8
Boiled potatoes	119	112	164
Pancake	390		86
Apple butter	56		
Hamburg steak	299		
Boiled eggs		79	
Veal		128	102
Sausage		106	
Cottage pudding		81	54
Turnips		163	139
Spinach		158	
Soup		259	
Crackers		20	
Toast			27
Fried eggs			48
Wheatena			128
Gravy			61
Carrots			146
Cranberries			20
Coffee cake			49
Bacon			16
Liver			145
November 25, 1909.			
Bread	234	70	26
Butter	60	14	4
Milk	298	314	226
Tea	649	641	
Coffee	343	345	570
Sugar	95	35	17

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 25, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Boiled potatoes		82	
Steak	206	116	
French fried potatoes	168		
English walnuts	59		
Elderberry pie	175		
Turkey		302	251
Spinach		82	
Gravy		138	107
Cranberries		148	129
Sweet potatoes		198	144
Celery, raw		53	96
Turnips		42	
Mince pie		107	
Popover			86
Stewed celery			76
Pumpkin pie			104
Beets			63
Pancake			58
Coffee cake			89
Liver			112
November 26, 1909.			
Bread	117	117	101
Butter	30	35	35
Milk	575	193	357
Tea	689		
Coffee		501	459
Sugar	97	21	25
Boiled potatoes	81	54	106
Scallops	175		
Chowchow	117		
Plums	107		
Boiled eggs	43	83	
Fried eggs	37		
Codfish		131	147
Turkey		143	134
Cabbage		126	
Rennet		106	
Jam		12	
Turnips		83	
Scrambled eggs			98
Wheatena			196
Tomatoes			73
Tapioca pudding			142
Sweet potatoes			73
Beet salad			71
Cranberries			88
Cheese			21
Pumpkin pie			127
Zwieback			26
November 27, 1909.			
Bread	88	155	23
Butter	14	48	24
Milk	100	250	202
Tea	1,052	202	
Coffee	246	363	836
Sugar	124	40	13
Boiled potatoes		111	30
Dumpling	316		
Broth	458		
Hash	160		
Scrambled eggs		253	87
Corned beef		113	
Sausage		164	
Tomatoes		103	
Tapioca pudding		139	
Turnips		74	
Corn bread			103
Wheatena			163
Eggnog			283
Cranberries			59
Boiled celery			73
Gravy			88
Pastry cake			280
Beets			138
Fried onions			23

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 27, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Soup			175
Bacon			17
Turkey			79
Steak			66
November 28, 1909.			
Bread	50	93	116
Butter		33	16
Milk		308	206
Tea	798	606	
Coffee		380	1,048
Sugar	59	73	66
Boiled potatoes	140	100	52
Cucumber salad	212		
Roast beef	149		
Mashed potatoes	161		
Gravy	115	76	45
Elderberry pie	133		
Banana	62	55	
Coffee cake	125		
Turkey	99	198	84
Boiled eggs		90	
Lettuce		34	
Cake		40	118
Shredded wheat			29
Popover			93
Cabbage soup			260
Cheese			55
Carrots			78
Custard			158
Ham			67
Lamb			71
November 29, 1909.			
Bread	262	164	80
Butter	75	59	37
Milk	303	214	249
Tea	655	114	
Coffee	347	406	573
Sugar	76	32	25
Boiled potatoes	130	168	108
Hamburg steak	256	90	
Cucumber salad	217		
Dumpling	261		
Currant jelly	30		
Boiled eggs		100	
Lamb		168	141
Veal		64	
Succotash		101	110
Bread pudding		133	132
Salad		57	
Fried eggs			47
Shredded wheat			26
Gravy			30
Cabbage soup			175
Cranberries			29
Beets			67
Coffee cake			61
Orange jelly			122
Cake			50
Ham			24
November 30, 1909.			
Bread	295	59	49
Butter	55	19	29
Milk	50	385	210
Tea	660	188	
Coffee	340	733	640
Sugar		40	25
Boiled potatoes	174	148	104
Liver	171		
Bacon	50		14
Apple butter	41		
Hash	266		
Toasted bread		20	
Boiled eggs		84	

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
November 30, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Omelet		116	
Sausage		156	
Ham		21	
Beef		67	137
Sweet potatoes		156	
Soup		266	
Cornstarch pudding		150	139
Turnips		151	94
Sauce		44	
Wheatena		98	128
Corn bread			80
Scrambled eggs			117
Gravy			60
Creamed potatoes			172
Pears			87
Cake			66
December 1, 1909.			
Bread	248	82	130
Butter	104	35	70
Milk	80	148	622
Tea	550		
Coffee	302	651	546
Sugar		22	18
Creamed potatoes	120	135	
Steak	152		
Muffins	191		
Apple butter	34		
Graham bread		60	36
Butter		35	
Boiled eggs		49	
Hamburg steak		152	
Spareribs		124	172
Baked beans		224	
Cabbage		112	90
Cottage pudding		65	80
Toast			29
Wheatena			122
Scrambled eggs			95
Crackers			32
Boiled potatoes			120
Fried potatoes			76
Rice			139
Cake			31
Roast beef			78
December 2, 1909.			
Bread	291	207	96
Butter	104	64	27
Milk	262	316	355
Tea	842	393	
Coffee		581	800
Sugar		61	38
Boiled potatoes	212	127	96
Hamburg steak	198		
Gravy	59		
Scrambled eggs	150		106
Fried eggs	81		
Boiled eggs		88	
Hash		177	116
Veal		123	86
Salad		59	
Turnips		143	
Bread pudding		161	122
Cake		103	190
Toast			28
Shredded wheat			30
Carrots			217
Vegetable salad			80
Biscuits			31
Cheese			34
December 3, 1909.			
Bread	414	182	102
Butter	93	55	32
Milk	704	258	368
December 3, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Tea	872	210	
Coffee	283	258	553
Sugar	25	20	29
Boiled potatoes		128	102
Sweet potatoes	144		
Pork chops	69		
Apple butter	20		
Boiled eggs		168	
Fish		231	
Brussels sprouts		122	98
Farina pudding		129	127
Rye bread			30
Scrambled eggs			74
Wheatena			129
Fried potatoes			56
Beets			123
Coffee cake			113
Codfish			165
Steak			99
December 4, 1909.			
Bread	272	164	164
Butter	70	53	42
Milk	40	312	291
Tea	160	642	
Coffee	280	754	414
Sugar		58	22
Boiled potatoes	126	123	335
Steak	138		
Sweet potatoes	142		
Scrambled eggs	154		105
Cheesecake	95		
Boiled eggs		84	
Corned beef		124	113
Ham		119	
Creamed potatoes		155	
Cabbage		108	96
Pudding		145	138
Shredded wheat			29
Gingerbread and custard			174
Gravy			115
Coffee cake			36
Boiled pork			57
December 5, 1909.			
Bread	395	62	26
Butter	86	15	24
Milk	334	315	275
Tea	162	643	
Coffee	312	354	701
Sugar		40	6
Boiled potatoes		71	87
Potato pancakes	316		
Roast lamb	87		
Chowchow	77		
Ham		91	
Sausages		159	
Kale		121	
Turnips		97	
Apple sauce		170	
Cake		112	76
Corn bread			78
Rye bread			20
Gravy			149
Rice			123
String beans			58
Baked apples			169
Boiled eggs			71
Cheese			19
Crackers			20
Rice pudding			148
Coffee cake			56
Liver			79
Bacon			13
Roast chicken			130
Anchovy			44

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 6, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	355	148	96
Butter	50	56	37
Milk	40	242	261
Tea	634	215	....
Coffee	297	....	341
Sugar	....	20	26
Boiled potatoes	221	166	315
Plums	118	....	....
Apple butter	60	....	....
Sausage	109	....	....
Lamb	66	131	100
Cheesecake	93	....	....
Boiled eggs	....	85	....
Ham	....	118	....
Lima beans	....	74	....
Sauce	....	45	....
Bread pudding	....	105	128
Cauliflower	....	140	....
Gravy	....	59	....
Cranberries	....	....	30
Pancakes	....	....	128
Orange layer cake	....	....	148
Boiled pork	....	....	242
December 7, 1909.			
Bread	283	129	193
Butter	83	59	51
Milk	199	314	371
Tea	617	373	....
Coffee	281	385	696
Sugar	10	40	55
Boiled potatoes	168	232	105
Cereal	295	....	....
Pork	176	....	....
Catsup	35	....	....
Sauerkraut	410	....	....
Plums	134	....	....
Boiled eggs	....	88	....
Liver	....	57	51
Lamb	....	50	82
Hamburg steak	....	166	157
Sweet potatoes	....	99	97
Biscuit	....	58	....
Turnips	....	175	179
Cornstarch pudding	....	155	131
Cream of wheat	....	....	139
Fried eggs	....	....	50
Oranges	....	....	73
Coffee cake	....	....	105
Potato salad	....	....	102
Cake	....	....	65
Bacon	....	....	13
December 8, 1909.			
Bread	135	111	178
Butter	134	28	52
Milk	442	206	279
Tea	944	215	....
Coffee	361	378	616
Sugar	71	20	38
Boiled potatoes	253	108	107
Cereal	229	....	....
Bacon	40	....	17
Liver	142	....	....
Wheat muffins	277	....	....
Fried eggs	91	....	85
Boiled eggs	....	87	....
Hamburg steak	....	170	....
Veal	....	143	99
Gravy	....	28	....
Peas	....	75	113
Cottage pudding	....	62	83
Crackers	....	20	....
Turnips	....	215	....
Soup	....	240	....
Cream of wheat	....	....	147
December 8, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Bologna sausage	....	....	154
Lettuce	....	....	75
Apple sauce	....	....	83
December 9, 1909.			
Bread	178	213	164
Butter	85	52	54
Milk	150	204	421
Tea	746	198	....
Coffee	381	396	728
Sugar	....	22	53
Boiled potatoes	140	113	101
Pancakes	207	....	....
Hamburg steak	158	....	....
Omelet	160	....	....
Catsup	10	....	....
Crullers	28	....	....
Boiled eggs	....	97	....
Sausage	....	131	89
Mutton	....	118	96
Baked beans	....	178	....
Gravy	....	12	....
Carrots	....	128	212
Rennet	....	123	90
Toast	....	....	37
Force	....	....	17
Coffee cake	....	....	44
Vegetable salad	....	....	140
Cake	....	....	95
Ice cream	....	....	150
Roast chicken	....	....	134
December 10, 1909.			
Bread	105	154	52
Butter	30	38	29
Milk	150	189	217
Tea	541	225	....
Coffee	353	401	544
Sugar	30	22	27
Boiled potatoes	124	146	203
Dumpling	334	....	....
Broth	534	....	....
Boiled beef	134	....	....
Catsup	58	....	....
Hash	182	....	....
Cheesecake	187	....	....
Boiled eggs	....	206	....
Codfish	....	186	169
Gravy	....	43	42
Baked beans	....	209	....
Stewed tomatoes	....	105	67
Apple pudding	....	230	141
Rolls	....	....	30
Cream of wheat	....	....	153
Fried eggs	....	....	46
Sauce	....	....	47
Beets	....	....	113
Bacon	....	....	13
Pickles	....	....	15
Rice pudding	....	....	195
Cake	....	....	65
Lamb chops	....	....	87
December 11, 1909.			
Bread	333	94	26
Butter	79	48	36
Milk	150	226	282
Tea	684	199	....
Coffee	366	413	548
Sugar	10	20	49
Mashed potatoes	176	121	157
Cereal	267	....	....
Liver	186	....	....
Bacon	51	....	15

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 11, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Apple butter	60		
Peanut bar	89		
Peanut brittle	32		
Graham bread		56	62
Boiled eggs		88	
Steak		183	71
Lettuce		122	
Cabbage		166	73
Rice pudding		106	55
Force			17
Scrambled eggs			104
Pears			73
Mushrooms			73
String beans			75
Apple jelly			126
Chicken soup			231
Cake			45
Crullers			102
Corned beef			62
December 12, 1909.			
Bread	339	55	27
Butter	92	16	12
Milk	412	337	84
Tea	732	612	
Coffee	353	377	638
Sugar		20	39
Boiled potatoes		171	
Chowchow	104		
Sweet potatoes	175		
Gravy	107	28	41
Pot-roast beef	166		
Lobster salad	153		
Cheesecake	178		
Peanut brittle	34		
Fried eggs	101		
Boiled eggs		88	
Fried ham		71	
Fresh ham		91	
Smoked ham		116	
Turnips		150	
Cake		67	85
Kale		191	
Apple sauce		124	
Corn bread			132
Onions			21
Mince pie			162
Carrots			86
Lettuce			79
Pancakes			95
Cranberries			13
Crullers			50
Cabbage, rice, chopped meat			173
Bacon			21
Liver			128
Meat balls			98
December 13, 1909.			
Bread	415	120	82
Butter	60	14	51
Milk	50	200	294
Tea	722	212	
Coffee	344	392	484
Sugar	10	20	37
Boiled potatoes	150	113	122
Cereal	196		
Steak	122	156	88
Apple butter	100		
Sweet potatoes	200		
Beef in gravy	55		
Graham bread		82	62
Boiled eggs		93	
Veal		138	81
Potato salad		108	65
December 13, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Lima beans		56	45
Gravy		16	
Bread pudding		135	86
Turnips		156	
Cream of wheat			177
Fried eggs			49
Sauce			38
Raw apples			40
Cake			56
Bacon			14
December 14, 1909.			
Bread	236	145	156
Butter	94	39	50
Milk	100	184	378
Tea	709	216	
Coffee	353	400	754
Sugar		21	48
Boiled potatoes	209	339	220
Liver	187		131
Gravy	74	32	27
Bacon	34		9
Biscuit	169		
Apple butter	45		
Boiled eggs	89	103	
Beef		143	81
Sausage		141	
Carrots		143	209
Rennet		150	97
Soup		255	
Crackers		20	
Graham bread			44
Scrambled eggs			105
Force			27
Cake			168
December 15, 1909.			
Bread	197	102	76
Butter	94	31	25
Milk	100	204	166
Tea	1,002	196	
Coffee	611	399	653
Sugar	53	20	70
Boiled potatoes		216	214
Hash	186		
Rice	279		
Tomato soup	615		
Apple butter	42		
Biscuits	211		
Boiled eggs		85	
Corned beef		123	
Mutton		120	112
Sauce		42	
Cabbage		129	
Soup		271	154
Crackers		16	
String beans		109	108
Rice pudding		142	165
Orange		90	100
Cream of wheat			155
Omelet			87
Gravy			68
Rice			72
Onions			33
Raw celery			38
Stewed pears			107
Pastry cake			152
Steak			133
December 16, 1909.			
Bread	179.2	174	102
Butter	50	39	31
Milk	50	344	272
Tea	708	191	

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 16, 1909—Contd.			
	Gms.	*Gms.*	*Gms.*
Coffee	386	367	608
Sugar	23	21	56
Boiled potatoes	176	119	82
Pancakes	204		
Scallops	181		
Nuts	6		
Plums	124		
Lemon juice	11		
Boiled eggs		183	
Sparerib		148	
Turnips		150	103
Cottage pudding		74	64
Apple			62
Cream of wheat			139
Fried eggs			52
Lettuce			45
Cake			40
Bacon			13
Steak			104
December 17, 1909.			
Bread	98	187	67
Butter	30	47	35
Milk	249	219	339
Tea	356	181	
Coffee	356	405	466
Sugar	94	20	47
Boiled potatoes	132	166	389
Orange	121		
Lemon juice	35		
Hamburg steak	180		
Chowchow	35		
Boiled eggs	86	82	
Layer cake	92		
Vanilla	1		
English walnuts	16		
Codfish		161	127
Sauce		46	31
Sardines		127	
Tomatoes		87	81
Lemon pie		73	88
Raw egg			42
Cream of wheat			137
Biscuits			10
Gravy			89
Rice pudding			124
Cake			164
Boiled pork			58
December 18, 1909.			
Bread	81	186	44
Butter	76	33	38
Milk	50	152	200
Tea	704		
Coffee	313	421	861
Sugar		44	53
Boiled potatoes	145	108	131
Catsup	20		
Pork	155		
Sauerkraut	414		
Muffins	292		
Boiled eggs		228	
Lamb		106	
Succotash		81	75
Farina pudding		137	126
Ginger cake		75	
Rolls			22
Force			22
Orange			78
Gravy			28
Sauce			15
Buckwheat cakes			200
Sirup			30
Cake			48
Liver			90
Bacon			10
Mutton			87

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 19, 1909.			
	Gms.	*Gms.*	*Gms.*
Bread	73	57	120
Butter	35	9	26
Milk	100	353	191
Tea	728	456	
Coffee	350	766	395
Sugar		41	
Boiled potatoes	229	264	
Apple butter	76		
Steak	212		
Gravy	10	75	
Biscuit	115		
Omelet	137		
Plums	107		
Boiled eggs		91	
Fresh ham		230	
Baked beans		117	224
Beets			65
Stewed pears			108
Custard			142
Cake			104
Meat balls			193
Boiled pork			41
December 20, 1909.			
Bread	219	212	180
Butter	101	42	41
Milk	50	256	263
Tea	999	195	
Coffee	308	373	826
Sugar	30	20	57
Boiled potatoes	161	110	93
Potato salad	187		
Bacon	45		
Liver	136		
Biscuit	99		
Sausages	148		79
Boiled eggs		82	
Hamburg steak		218	
Lamb		153	75
Sauce		50	
Fried onions		84	
Preserved pears		108	
Peas		104	128
Pudding		128	164
Hominy			143
Cake			54
Chocolate			150
Boiled pork			48
Cheese			22
December 21, 1909.			
Bread	358	209	39
Butter	96	55	55
Milk	100	240	554
Tea	711	408	
Coffee	573	401	741
Sugar	50	40	27
Boiled potatoes	287	237	97
Hamburg steak	259	183	129
Chowchow	139		
Apple butter	12		
Boiled eggs		102	
Beef		133	
Gravy		20	
Cauliflower		98	86
Rennet		94	142
Rolls			68
Raw eggs			45
Cream of wheat			138
Rice			112
Cake			79
Chicken			94
December 22, 1909.			
Bread	409	217	57
Butter	130	57	35

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 22, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Milk	50	189	223
Tea	603	188	....
Coffee	355	396	656
Sugar	....	20	31
Boiled potatoes	150	171	98
Steak	146	....	....
Cake	84	....	38
Boiled eggs	....	95	74
Sausage	....	140	53
Veal	....	107	109
Soup	....	253	....
Crackers	....	20	....
Lima beans	....	97	....
Bread pudding	....	121	117
Swedish bread	....	....	34
Toast	....	....	16
Force	....	....	25
Sauce	....	....	25
Cream cheese	....	....	32
December 23, 1909.			
Bread	330	191	108
Butter	123	50	60
Milk	40	252	174
Tea	611	204	....
Coffee	361	418	285
Sugar	....	20	8
Boiled potatoes	179	....	305
Potato cake	165	....	....
Beef	127	....	....
Chili sauce	39	....	....
Broth	316	....	....
Cake	67	....	44
Boiled eggs	....	88	52
Ham	....	146	....
Mutton	....	121	78
Fried potatoes	....	191	....
Soup	....	285	....
Crackers	....	20	....
Carrots	....	151	174
Farina pudding	....	134	148
Swedish bread	....	....	42
Cream of wheat	....	....	162
Herring	....	....	63
December 24, 1909.			
Bread	273	130	....
Butter	89	32	46
Milk	120	339	412
Tea	961	217	....
Coffee	286	385	762
Sugar	32	20	44
Boiled potatoes	168	140	178
Oatmeal	245	....	....
Pancake	132	....	....
Bacon	50	....	23
Candy	68	....	....
Cookies	88	....	....
Boiled eggs	117	88	....
Sardines	....	117	....
Codfish	....	183	319
Cottage pudding	....	54	55
Tomatoes	....	98	70
Rolls	....	....	28
Graham bread	....	....	57
Swedish bread	....	....	130
Force	....	....	23
Sauce	....	....	78
Beets	....	....	25
Rice pudding	....	....	145
Liver	....	....	66
Boiled pork	....	....	140
Bologna sausage	....	....	35
Spiced herring	....	....	25

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 25, 1909.	*Gms.*	*Gms.*	*Gms.*
Bread	248	70	119
Butter	70	23	7
Milk	321	305	....
Tea	550	614	79
Coffee	281	373	561
Sugar	....	40	37
Boiled potatoes	166	65	55
Turkey	322	337	138
Cucumber salad	252	....	....
Elderberry pie	293	....	....
Orange	117	....	....
Candy	11	....	....
Fruit cake	42	....	....
Boiled eggs	....	86	....
Mashed potatoes	....	147	....
Giblet sauce	....	172	....
String beans	....	182	....
Cranberries	....	107	....
Celery	....	138	33
Charlotte russe	....	44	....
Swedish bread	....	....	40
Boiled celery	....	....	91
Sweet potatoes	....	....	100
Gravy	....	....	135
Cranberries	....	....	83
Pumpkin pie	....	....	148
Cake	....	....	61
Boiled pork	....	....	177
Codfish	....	....	79
Bologna sausage	....	....	43
Spiced herring	....	....	22
December 26, 1909.			
Bread	365	81	115
Butter	90	27	48
Milk	315	296	481
Tea	603	656	....
Coffee	300	393	713
Sugar	....	40	30
Boiled potatoes	230	125	52
Beef	141	....	....
Orange	122	....	....
Elderberry pie	134	....	....
Cakes	67	....	....
Candy	108	....	....
Sausages	....	152	....
Turkey	....	119	117
Fresh ham	....	122	....
Mashed potatoes	....	108	....
Turnips	....	149	....
Gravy	....	33	104
Soup	....	235	....
Crackers	....	20	....
Pumpkin pie	....	122	58
Swedish bread	....	....	35
Wheatena	....	....	134
Fried eggs	....	....	47
Bouillon	....	....	157
Sweet potatoes	....	....	105
Rice	....	....	123
Cranberries	....	....	68
Raw celery	....	....	28
Salad	....	....	46
Rice pudding	....	....	12
Bacon	....	....	20
Bologna sausage	....	....	22
Boiled pork	....	....	81
December 27, 1909.			
Bread	270	109	126
Butter	70	44	28
Milk	368	177	291
Tea	711	204	....
Coffee	300	423	574

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 27, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Sugar	35	20	31
Boiled potatoes	122	117	234
Beef, roast	127	119	149
Dressing	214	...	...
Creamed turkey	139	...	...
Boiled eggs	...	86	...
Ham	...	163	...
Gravy	...	70	...
Creamed potatoes	...	249	...
Soup	...	263	...
Crackers	...	18	...
Pumpkin pie	...	150	...
Rice pudding	...	146	265
Turnips	...	156	190
Wheatena	...	...	135
Ham omelet	...	...	76
Beets	...	...	35
Cake	...	...	70
Codfish	...	...	100
Spiced herring	...	...	27
Bologna sausage	...	...	35
Boiled pork	...	...	45
December 28, 1909.			
Bread	303	170	34
Butter	90	50	37
Milk	210	224	320
Tea	589	417	...
Coffee	270	395	481
Sugar	10	40	28
Boiled potatoes	232	277	140
Hamburg steak	190	109	...
Hash	198	...	...
Orange	90	...	...
Oatmeal	230	...	...
Boiled eggs	...	84	...
Lamb	...	135	130
Chicken	...	53	43
Carrots	...	155	214
Cornstarch pudding	...	168	162
Pancake	...	40	131
Graham bread	...	...	65
Wheatena	...	...	127
Fried potatoes	...	...	112
Sauce	...	...	28
Cranberries	...	...	55
Cake	...	...	78
Codfish	...	...	81
Meat balls	...	...	50
December 29, 1909.			
Bread	201	61	40
Butter	90	33	53
Milk	257	185	374
Tea	756	210	200
Coffee	...	409	674
Sugar	31	20	34
Boiled potatoes	220	110	176
Soup	252	...	...
Steak	166	181	92
Biscuit	179	74	...
Quince	343	...	...
Boiled eggs	...	84	...
Beef	...	182	108
Gravy	...	68	75
Soup	...	250	...
Baked beans	...	154	...
Cabbage	...	116	...
Rennet	...	132	90
Swedish bread	...	...	44
Biscuits	...	...	132
Wheatena	...	...	134
Raw egg	...	...	47
Creamed cabbage	...	...	79
Carrots	...	...	110

Kind of food.	Subject I K.	Subject II O.	Subject III N.
December 29, 1909—Contd.	*Gms.*	*Gms.*	*Gms.*
Beets	...	...	45
Pickles	...	...	32
Rice pudding	...	...	145
Cake	...	...	70
December 30, 1909.			
Bread	194	111	56
Butter	83	37	55
Milk	100	328	308
Tea	741	204	...
Coffee	380	382	671
Sugar	100	20	36
Boiled potatoes	200	165	127
Potato cake	170	...	...
Dumpling	245	...	...
Broth	197	...	...
Beef	300	...	...
Chili sauce	104	...	...
Quince jelly	24	...	...
Biscuit	109	...	...
Boiled eggs	...	104	94
Hamburg steak	...	170	...
Veal	...	162	98
Fried onions	...	118	...
Soup	...	246	...
Crackers	...	20	...
Cottage pudding	...	59	86
Turnips	...	132	160
Rolls	...	...	129
Wheatena	...	...	96
Orange	...	...	110
Celery	...	...	103
Cocoa	...	...	239
Cake	...	...	118
Hash	...	...	129
December 31, 1909.			
Bread	402	143	167
Butter	79	49	40
Milk	432	222	390
Tea	760	197	...
Coffee	393	402	700
Sugar	122	20	25
Boiled potatoes	...	132	168
Potato salad	203	...	...
Frankfurt sausage	154	...	...
Codfish	...	130	200
Sauce	...	45	40
Boiled eggs	...	199	...
Soup	...	238	...
Crackers	...	20	...
Macaroni	...	169	156
Bread pudding	...	86	89
Wheatena	...	...	133
Fried eggs	...	...	39
Rice pudding	...	...	140
Beets	...	...	30
Bacon	...	...	13
Bologna sausage	...	...	15
Pork	...	...	80
January 1, 1910.			
Bread	122	64	80
Butter	32	17	25
Milk	50	305	345
Tea	356	642	...
Coffee	371	423	680
Sugar	83	40	20
Boiled potatoes	...	193	60
Sweet potatoes	284	...	90
Beef	173	106	...
Gravy	50	...	137
Chowchow	131	...	...
Elderberry pie	436	...	...

Table 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 1, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Canned peaches	71		
Fruit cake	85		
Boiled eggs		71	
Ham		153	
Cabbage		150	
Pickle		12	
Baked beans		128	
Orange		144	
Cake		57	
Catsup		10	
Shredded wheat			27
Sauce			27
Cauliflower			132
Cranberries			60
Orange jelly			172
Tomatoes			20
Baked apples			54
Fish			50
Chicken			130
Bologna sausage			45
Spiced herring			42
January 2, 1910.			
Bread	196	64	107
Butter	63	19	28
Milk	89	319	320
Tea	650	630	
Coffee	340	391	788
Sugar	117	40	35
Boiled potatoes	173	88	151
Chili sauce	50		
Gravy	93		
Peaches	91	132	
Elderberry pie	260		
Steak	199		
Boiled eggs		92	
Ham		94	
Cabbage		186	
Baked beans		126	
Cake		87	85
Oatmeal			150
Scrambled eggs			91
Fried eggs			40
Sauce			88
Rice pudding			180
Salad			30
Beets			20
Peaches			40
Bacon			18
Codfish			215
Bologna			30
Ham			30
January 3, 1910.			
Bread	288	100	118
Butter	60	32	71
Milk	411	216	432
Tea	688	212	
Coffee	368	569	410
Sugar	120	32	24
Boiled potatoes	208	126	182
Beef	97		
Sweet potatoes	125		
Candy	20		
Liver	156		
Bacon	38		
Boiled eggs		90	
Ham		123	
Lamb		130	115
Baked beans		123	
Soup		256	
Crackers		20	
Lima beans		72	
Rice pudding		135	145
Toast			47
Creamed potatoes			126

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 3, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Prunes			104
Cake			55
Meat balls			137
January 4, 1910.			
Bread	184	164	71
Butter	80	62	34
Milk	337	201	364
Tea	735	219	
Coffee	405	338	705
Sugar	84	30	39
Boiled potatoes	219	108	102
Hamburg steak	254	165	74
Gravy	79		
Muffins	212		
Boiled eggs	33	97	43
Mutton		130	75
Sweet potatoes		100	
Cocoa		256	
Bean salad		92	
Turnips		162	157
Cornstarch pudding		126	130
Oatmeal			160
Vegetable salad			106
Rice pudding			159
Cake			85
Bacon			10
January 5, 1910.			
Bread	173	62	130
Butter	100	21	36
Milk	50	174	248
Tea	782	207	
Coffee	393	378	634
Sugar	121	40	36
Boiled potatoes	215	87	116
Muffins	155		
Steak	141		
Gravy	25		
Potato cake	178		
Omelet		125	
Veal		71	61
Hamburg steak		183	
Carrots		153	274
Rennet		100	101
Baked beans		210	
Soup		239	
Crackers		20	
Rolls			34
Oatmeal			134
Scrambled eggs			91
Turnips			219
Cranberries			74
Cake			65
Bacon			12
Sparerib			163
January 6, 1910.			
Bread	428	178	143
Butter	100	37	45
Milk	170	182	301
Tea	770	197	
Coffee	351	396	421
Sugar	112	20	21
Boiled potatoes	179	113	74
Pork chops	118		
Apple butter	21		
Boiled eggs		93	
Mutton		111	71
Gravy		43	
Steak		118	
String beans		104	
Lemon pie		89	81
Soup		251	
Crackers		20	

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 6, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Shredded wheat	....	....	27
Scrambled eggs	....	....	58
Vegetable salad	....	....	123
Beans	....	....	90
Cake	....	....	100
Turkey	....	....	64
January 7, 1910.			
Bread	266	146	133
Butter	79	39	37
Milk	50	435	314
Tea	814	181	....
Coffee	302	579	819
Sugar	90	40	42
Boiled potatoes	....	137	258
Chowchow	96	....	....
Fish cakes	337	....	....
Quince jelly	45	....	....
Pancakes	337	....	....
Boiled eggs	....	140	50
Codfish	....	145	217
Tomatoes	....	105	88
Cottage pudding	....	78	63
Charlotte russe	....	51	....
Oatmeal	....	....	141
Beets	....	....	91
Apple sauce	....	....	102
Cake	....	....	90
Pork	....	....	268
January 8, 1910.			
Bread	352	133	120
Butter	81	44	39
Milk	40	230	252
Tea	634	211	....
Coffee	317	415	741
Sugar	92	20	62
Boiled potatoes	....	126	141
Hash	170	....	....
Chili sauce	43	....	....
Glösse	244	....	....
Beef	164	....	....
Broth	182	....	....
Boiled eggs	....	95	....
Corned beef	....	120	101
Sausages	....	223	....
Sweet potatoes	....	115	....
Turnips	....	108	68
Farina pudding	....	116	116
Soup	....	233	....
Crackers	....	20	....
Charlotte russe	....	50	....
Wheatena	....	....	118
Gravy	....	....	55
Boiled rice	....	....	182
Lettuce	....	....	54
Rice pudding	....	....	150
Cake	....	....	98
Smelts	....	....	73
Broiled chicken	....	....	95
January 9, 1910.			
Bread	323	66	48
Butter	80	22	17
Milk	40	364	355
Tea	611	614	....
Coffee	302	575	909
Sugar	90	40	47
Boiled potatoes	186	127	100
Pork	178	....	333
Sauerkraut	287	....	....
Ice cream	101	....	....
Cake	32	50	180
Boiled eggs	....	80	....
Bacon	....	50	7

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 9, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Fresh ham	....	104	....
Gravy	....	52	....
Peas	....	169	....
Celery	....	72	....
Preserved peaches	....	80	....
Oatmeal	....	....	103
Scrambled eggs	....	....	52
Beets	....	....	67
Lettuce	....	....	34
Strawberry jelly	....	....	100
Roast beef	....	....	70
January 10, 1910.			
Bread	168	168	111
Butter	46	50	50
Milk	40	273	145
Tea	673	233	....
Coffee	299	386	664
Sugar	90	60	28
Boiled potatoes	184	136	131
Pancakes	370	....	....
Jelly	53	....	....
Steak	152	....	....
Boiled eggs	110	82	....
Hamburg steak	....	105	113
Lamb	....	115	96
Sweet potatoes	....	72	64
Vegetable salad	....	131	83
Apple sauce	....	137	....
Rice pudding	....	130	238
Lima beans	....	60	....
Oatmeal	....	....	170
Scrambled eggs	....	....	70
Cake	....	....	45
Bacon	....	....	8
January 11, 1910.			
Bread	202	136	54
Butter	46	28	10
Milk	100	223	167
Tea	316	201	....
Coffee	345	488	634
Sugar	70	30	38
Mashed potatoes	139	....	....
Steak	124	....	....
Peas	118	....	....
Boiled eggs	106	77	....
Pot roast	....	138	....
Hamburg steak	....	130	....
Gravy	....	27	....
Boiled potatoes	....	129	65
Creamed potatoes	....	235	....
Carrots	....	181	207
Rennet	....	93	157
Wheatena	....	....	22
Pancake	....	....	113
Cranberries	....	....	25
Banana	....	....	80
Cake	....	....	85
Liver	....	....	110
Bologna sausage	....	....	40
January 12, 1910.			
Bread	....	190	103
Butter	66	49	35
Milk	....	236	366
Tea	628	221	....
Coffee	324	394	618
Sugar	80	20	16
Boiled potatoes	276	108	292
Biscuit	267	....	....
Liver	149	....	....
Bacon	35	....	....
Elderberry pie	115	....	....
Steak	51	....	....

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 12, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Boiled eggs		188	71
Veal		130	76
Gravy		30	
Ham		151	
Turnips		147	165
Farina pudding		134	188
Soup		257	
Crackers		20	66
Banana			40
Oatmeal			158
Sauce			123
Apple sauce			171
Cake			64
Pork			55
January 13, 1910.			
Bread	163	194	146
Butter	40	62	50
Milk	394	406	464
Tea	611	560	
Coffee	304	368	434
Sugar	71	61	9
Boiled potatoes	109	175	121
Doughnuts	271		
Corned beef	142		
Cabbage	332		
Vinegar	30		
Boiled eggs		83	
Mutton		195	89
Ham		52	54
Succotash		125	70
Cottage pudding		58	50
Shredded wheat			30
Scrambled eggs			99
Fried potatoes			78
Lettuce			15
Cake			40
Bacon			21
January 14, 1910.			
Bread	496	145	77
Butter	110	54	35
Milk	400	208	554
Tea	706	191	
Coffee	324	366	559
Sugar	80	20	37
Boiled potatoes		123	
Hash	240		
Cabbage	260		
Boiled eggs	99	231	80
Graham bread		46	
Codfish		171	
Sauce		33	125
Stewed tomatoes		98	
Prune pudding		130	
Soup		242	
Crackers		20	44
Charlotte russe		49	
Oatmeal			146
Cheese			18
Rice pudding			186
Carrots			125
Rice			98
Gravy			130
Cake			131
Roast chicken			141
January 15, 1910.			
Bread		177	113
Butter		43	47
Milk		242	257
Tea		213	
Coffee		223	690
Sugar		20	22
Boiled potatoes		144	377
January 15, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Boiled eggs		90	
Corned beef		112	99
Sausages		117	
Fried potatoes		79	
Cabbage		155	76
Cornstarch pudding		130	
Soup		253	
Crackers		9	
Toast			22
Shredded wheat			26
Fried eggs			38
Cottage pudding			172
Pancakes			109
Cranberries			31
Cake			85
Bacon			14
Herring			71
January 16, 1910.			
Bread		66	143
Butter		19	34
Milk		315	258
Tea		608	
Coffee		407	668
Sugar		40	36
Boiled potatoes		45	169
Mashed potatoes		132	
Boiled eggs		85	
Bacon		60	
Fresh ham		181	
Gravy		34	39
Turnips		120	
Peas		57	
Apple sauce		159	
Cabbage soup			264
Raspberry jelly			177
Lettuce			61
Rice pudding			178
Cake			80
Liver			94
Lamb			107
Bologna sausage			42
January 17, 1910.			
Bread		154	83
Butter		54	62
Milk		248	315
Tea		219	
Coffee		375	576
Sugar		40	37
Boiled potatoes		136	102
Boiled eggs		85	
Hamburg steak		210	
Lamb		137	69
Gravy		67	
Soup		262	
Crackers		20	
Lettuce		86	
Lima beans		79	
Bread pudding		165	114
Toast			52
Creamed potatoes			145
Cake			142
Hash			128
January 18, 1910.			
Bread		60	114
Butter		29	28
Milk		188	165
Tea		220	
Coffee		402	710
Sugar		40	44
Boiled potatoes		200	117
Boiled eggs		93	
Hamburg steak		152	

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 18, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Gravy		23	
Roast beef		90	
Carrots and peas		151	198
Rennet		99	95
Biscuit		45	
Lettuce		46	
Force			16
Scrambled eggs			132
Sauce			37
Bacon			9
Beef loaf			173
Bologna			42
January 19, 1910.			
Bread		180	133
Butter		54	45
Milk		281	630
Tea		202	
Coffee		567	699
Sugar		58	31
Boiled potatoes		125	129
Boiled eggs		80	
Veal		136	78
Sausages		135	
Turnips		155	112
Soup		214	
Crackers		20	
Cottage pudding		76	56
Oatmeal			150
Orange			54
Raw egg			90
Fried potatoes			87
Sauce			34
Mustard pickles			26
Prunes			100
Cake			114
Beef loaf			85
January 20, 1910.			
Bread		169	118
Butter		49	41
Milk		274	220
Tea		123	
Coffee		391	715
Sugar		60	50
Boiled potatoes		244	279
Boiled eggs		77	
Lamb chops		140	139
Roast beef		70	
Gravy		24	
String beans		71	63
Farina pudding		178	120
Salt herring		71	
Cocoa		224	222
Wheatena			156
Fried eggs			39
Sauce			14
Cake			118
Bacon			19
Herring			77
January 21, 1910.			
Bread		110	117
Butter		48	33
Milk		323	316
Tea		402	
Coffee		400	645
Sugar		40	34
Boiled potatoes		122	153
Brown bread		80	
Boiled eggs		223	
Codfish		135	115
Baked beans		194	
Tomatoes		96	97
Charlotte russe		54	
January 21, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Bread pudding		146	131
Oatmeal			140
Scrambled eggs			66
Bouillon			240
Rice pudding			207
Cake			82
Bacon			14
Bologna sausage			32
January 22, 1910.			
Bread		170	93
Butter		48	25
Milk		244	212
Tea		198	
Coffee		402	688
Sugar		20	35
Boiled potatoes		130	200
Boiled eggs		100	
Sausages		137	
Corned beef		112	96
Cabbage		135	110
Lettuce		103	
Cornstarch pudding		114	127
Force			15
Scrambled eggs			93
Beets			99
Soup			310
Gravy			69
Cake			80
Bacon			15
Pork chops			139
January 23, 1910.			
Bread		62	77
Butter		19	23
Milk		269	70
Tea		432	137
Coffee		581	689
Sugar		20	62
Boiled potatoes		243	105
Boiled eggs		89	
Bacon		87	
Mutton		112	
Ham		104	
Turnips		130	
Gravy		20	
Cabbage		203	
Preserved peaches		90	
Popover			102
Fried potatoes			75
Beets			65
Raw celery			54
Vegetable soup			269
Spinach			37
Horse-radish sauce			72
Floating island			84
Cake			67
Liver			93
Boiled beef			162
January 24, 1910.			
Bread		176	38
Butter		46	18
Milk		223	352
Tea		208	
Coffee		376	843
Sugar		60	61
Boiled potatoes		121	98
Boiled eggs		87	
Ham		79	
Lamb		126	110
Caper sauce		40	43
Baked beans		227	
Peas		91	141
Rice pudding		126	119

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 24, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Oatmeal			126
Fried eggs			43
Cake			153
Crackers			40
Bacon			10
January 25, 1910.			
Bread		183	99
Butter		47	37
Milk		199	163
Tea		203	
Coffee		391	630
Sugar		60	45
Boiled potatoes		136	221
Boiled eggs		83	
Hamburg steak		364	184
Gravy		24	
Carrots		163	248
Fried onions		122	
Rennet		123	
Soup		240	
Crackers		20	
Oatmeal			157
Scrambled eggs			90
Rice pudding			203
Cake			61
Bacon			10
Steak			133
January 26, 1910.			
Bread		184	138
Butter		51	36
Milk		232	248
Tea		230	
Coffee		387	683
Sugar		60	43
Boiled potatoes		137	122
Boiled eggs		83	
Veal		126	79
Gravy		19	
Sausages		145	48
Succotash		89	81
Farina pudding		137	131
Peas		137	
Soup		240	
Crackers		20	
Fried eggs			44
Wheatena			110
Sauce			35
Pancakes			135
Cranberries			38
Cake			79
Anchovies			48
Cheese			60
January 27, 1910.			
Bread		166	127
Butter		45	30
Milk		233	396
Tea		211	
Coffee		390	818
Sugar		60	46
Boiled potatoes		126	87
Boiled eggs		181	
Bacon		41	14
Mutton		105	60
Gravy		20	
String beans		97	
Baked beans		100	100
Soup		244	
Crackers		20	
Cornstarch pudding		135	122
Force			21
Scrambled eggs			94
Eggnog			300
January 27, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Cake			52
Cream cheese			10
January 28, 1910.			
Bread		175	124
Butter		41	33
Milk		236	692
Tea		216	
Coffee		385	750
Sugar		60	43
Boiled potatoes		103	128
Boiled eggs		90	45
Smelts		157	
Codfish		186	187
Tomatoes		66	95
Cottage pudding		86	70
Charlotte russe		55	
Soup		249	
Crackers		25	
Oatmeal			147
Baked beans			141
Cake			117
Pork			49
January 29, 1910.			
Bread		167	91
Butter		55	40
Milk		210	250
Tea		202	
Coffee		413	869
Sugar		60	36
Boiled potatoes		94	242
Mashed potatoes		127	
Omelet		157	
Steak		153	159
Corned beef		96	123
Baked beans		135	
Cabbage		122	92
Soup		231	
Crackers		20	
Bread pudding		137	142
Boiled eggs			47
Oatmeal			117
Rice pudding			99
Onions			26
Sauce			23
Cake			94
January 30, 1910.			
Bread		94	109
Butter		25	25
Milk		310	267
Tea		641	
Coffee		393	450
Sugar		40	32
Boiled potatoes		165	88
Boiled eggs		85	
Bacon		62	
Chicken		193	101
Gravy		95	113
Peas		82	
Vegetable soup			182
String beans			50
Cherry jelly			153
Cheese			10
Cake			94
Raw celery			40
Apple sauce			69
Lettuce			53
Bologna sausage			29
Anchovies			32
January 31, 1910.			
Bread		205	120
Butter		61	39
Milk		208	457

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
January 31, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Tea		203	
Coffee		402	477
Sugar		40	37
Boiled potatoes		132	153
Boiled eggs		170	
Ham		99	
Lamb		123	89
Caper sauce		44	
Carrots		199	236
Soup		242	
Crackers		20	
Rice pudding		137	88
Hominy			200
Apple sauce			122
Cake			100
Sausage			69
Steak			92
February 1, 1910.			
Bread		146	123
Butter		63	42
Milk		257	158
Tea		390	
Coffee		389	656
Sugar		80	45
Boiled potatoes		242	155
Boiled eggs		92	
Hamburg steak		109	
Hash		213	
Succotash		95	
Rennet		102	104
Biscuits		74	
Scrambled eggs			66
Oatmeal			162
Sauce			34
Cake			130
Beef loaf			207
Sausage			73
February 2, 1910.			
Bread		189	169
Butter		58	15
Milk		159	370
Tea		207	151
Coffee		401	658
Sugar		60	51
Boiled potatoes		115	
Boiled eggs		78	
Hamburg steak		124	
Veal		213	128
Gravy		28	
Turnips		133	104
Baked beans		170	
Soup		234	
Crackers		20	
Macaroni		101	84
Bread pudding		119	123
Oatmeal			145
Scrambled eggs			85
Sauce			25
Fried potatoes			93
Raw tomatoes			86
Cream cheese			27
Rice pudding			211
Cake			105
Ham			83
February 3, 1910.			
Bread		151	110
Butter		35	46
Milk		203	248
Tea		201	
Coffee		363	676
Sugar		45	32
Boiled potatoes		129	186

Kind of food.	Subject I K.	Subject II O.	Subject III N.
February 3, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Boiled eggs		70	
Mutton		103	77
Sausage		93	
Gravy		17	
String beans		74	76
Farina pudding		104	113
Soup		206	
Crackers		20	
Peas		137	
Banana			104
Force			18
Fried eggs			44
Fried potatoes			102
Pancake			154
Cake			105
Ham			17
Beef loaf			74
February 4, 1910.			
Bread		183	92
Butter		51	38
Milk		268	365
Tea		201	
Coffee		484	654
Sugar		70	41
Boiled potatoes		144	236
Boiled eggs		76	
Codfish		153	135
Sauce		52	129
Fried oysters		233	
Tomatoes		86	89
Soup		228	
Crackers		20	
Charlotte russe		61	
Cornstarch pudding		105	125
Fried eggs			44
Oatmeal			133
Pancake			86
Cranberries			25
Bacon			15
Pork			26
February 5, 1910.			
Bread		167	92
Butter		39	43
Milk		311	417
Tea		212	
Coffee		394	506
Sugar		60	32
Boiled potatoes		109	291
Boiled eggs		82	
Corned beef		122	97
Sausage		143	
Cabbage		147	
Cottage pudding		65	49
Peas		137	
Wheatena			162
Scrambled eggs			69
Gravy			89
Rice			185
Prunes			91
Cake			40
Chicken			84
February 6, 1910.			
Bread		68	42
Butter		19	20
Milk		313	170
Tea		420	168
Coffee		417	660
Sugar		100	46
Boiled potatoes		110	53
Mashed potatoes		88	
Boiled eggs		83	
Bacon		47	12

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
February 6, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Mutton		119	
Gravy		39	51
Sparerib		111	
Peas		68	
Cabbage		254	
Cornstarch pudding		132	
Preserved pears		89	
Corn bread			60
Shredded wheat			27
Fried potatoes			136
Stewed celery			92
Raw celery			59
Water cress			15
Soup			184
Cake			65
Liver			75
Pot roast			86
Pork			69
February 7, 1910.			
Bread		180	69
Butter		48	39
Milk		249	317
Tea		396	
Coffee		385	421
Sugar		80	31
Boiled potatoes		91	155
Boiled eggs		199	
Lamb		123	111
Beans		94	
Soup		255	
Crackers		20	
Caper sauce		51	54
Rice pudding		150	121
Oatmeal			152
Fried eggs			48
Preserved peaches			72
Cake			44
Meat pie			188
February 8, 1910.			
Bread		119	108
Butter		40	28
Milk		230	401
Tea		399	
Coffee		386	686
Sugar		80	34
Boiled potatoes		101	72
Fried potatoes		90	95
Rolls		63	
Boiled eggs		84	
Hamburg steak		138	169
Corned beef		84	70
Carrots		192	200
Rennet		106	99
Apple sauce		185	
Shredded wheat			27
Scrambled eggs			96
Cake			121
Bacon			14
February 9, 1910.			
Bread		155	155
Butter		42	58
Milk		227	557
Tea		201	
Coffee		387	882
Sugar		60	46
Boiled potatoes		89	153
Boiled eggs		209	
Veal		158	93
Succotash		126	59
Farina pudding		134	136
Soup		222	
Crackers		20	
Oatmeal			120
February 9, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Omelet			84
Sauce			50
Cake			94
Potato salad			136
Rice pudding			183
Bacon			10
Ham			76
February 10, 1910.			
Bread		91	172
Butter		31	60
Milk		299	312
Tea		198	
Coffee		391	684
Sugar		60	32
Boiled potatoes		75	
Boiled eggs		85	56
Lamb		154	
Hamburg steak		152	
Gravy		22	
Turnips		185	84
Cottage pudding		48	61
Baked beans		162	
Wheatena			150
Sauce			39
Crackers			30
Cake			75
Veal			51
Pork			85
February 11, 1910.			
Bread		169	139
Butter		43	45
Milk		230	394
Tea		210	
Coffee		409	716
Sugar		60	45
Boiled potatoes		110	143
Boiled eggs		130	52
Bass		141	130
Fried oysters		180	
Tomatoes		102	54
Bread pudding		111	124
Charlotte russe		34	
Soup		228	
Crackers		20	
Shredded wheat			27
Rice			112
Prunes			105
Cake			52
Ham			51
February 12, 1910.			
Bread		53	81
Butter		32	29
Milk		231	335
Tea		421	
Coffee		388	702
Sugar		80	48
Boiled potatoes		138	259
Mashed potatoes		127	
Graham bread		52	
Boiled eggs		93	
Corned beef		152	114
Smelts		180	
Cabbage		170	92
Pumpkin pie		198	134
Soup		215	
Crackers		20	30
Oatmeal			117
Sauce			47
Stewed pears			131
Cake			88
Blood bologna			116
Herring			60

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.
February 13, 1910.	*Gms.*	*Gms.*	*Gms.*
Bread	....	93	116
Butter	....	25	30
Milk	....	245	243
Tea	....	410	141
Coffee	....	562	682
Sugar	....	100	42
Boiled potatoes	....	75	109
Mashed potatoes	....	109	....
Boiled eggs	....	91	55
Bacon	....	62	....
Ham	....	144	....
Gravy	....	49	66
Peas	....	73	....
Ice cream	....	106	....
Preserved pears	....	86	....
Wheatena	....	....	157
Cheese	....	....	16
Fried potatoes	....	....	73
Beets	....	....	98
Tomato catsup	....	....	21
Beans	....	....	74
Baked apples	....	....	87
Bread pudding	....	....	75
Vegetable soup	....	....	210
Roast beef	....	....	163
Cake	....	....	82
February 14, 1910.			
Bread	....	200	134
Butter	....	59	43
Milk	....	210	549
Tea	....	217	....
Coffee	....	389	666
Sugar	....	60	42
Boiled potatoes	....	156	273
Boiled eggs	....	84	....
Hamburg steak	....	174	....
Beef	....	75	....
Sauce	....	37	37
Lima beans	....	108	....
Soup	....	196	....
Crackers	....	20	....
Macaroni	....	116	....
Farina pudding	....	147	....
Oatmeal	....	....	119
Omelet	....	....	91
Bananas	....	....	57
Carrots	....	....	116
Rice pudding	....	....	124
Onions	....	....	40
Prunes	....	....	104
Cake	....	....	66
Bacon	....	....	18
Lamb	....	....	106
Meat balls	....	....	125
February 15, 1910.			
Bread	....	181	70
Butter	....	59	42
Milk	....	195	234
Tea	....	194	....
Coffee	....	401	728
Sugar	....	80	42
Boiled potatoes	....	106	105
Potato salad	....	82	....
Boiled eggs	....	87	....
Lamb	....	185	....
Hash	....	199	....
Carrots	....	140	....
Rice pudding	....	105	....
Cocoa	....	310	....
Oatmeal	....	....	130
Macaroni	....	....	103
Sauce	....	....	49
February 15, 1910—Contd.	*Gms.*	*Gms.*	*Gms.*
Farina pudding	....	....	142
Griddle cakess	....	....	180
Sirup	....	....	40
Cake	....	....	55
Blood bologna	....	....	143
Pot roast	....	....	80
February 16, 1910.			
Bread	....	89	111
Butter	....	35	54
Milk	....	164	440
Tea	....	183	....
Coffee	....	408	823
Sugar	....	60	57
Boiled potatoes	....	103	150
Boiled eggs	....	90	....
Veal	....	127	110
Scallops	....	169	....
Succotash	....	106	71
Rennet	....	206	164
Baked beans	....	159	....
Wheatena	....	....	146
Raw eggs	....	....	100
Crackers	....	....	30
Sauce	....	....	24
Creamed potatoes	....	....	119
Cake	....	....	80
Meat balls	....	....	106
February 17, 1910.			
Bread	....	149	136
Butter	....	42	39
Milk	....	175	392
Tea	....	221	....
Coffee	....	412	702
Sugar	....	60	43
Boiled potatoes	....	105	84
Boiled eggs	....	90	....
Mutton	....	102	100
Hamburg steak	....	147	....
Gravy	....	18	....
Carrots	....	164	200
Cornstarch pudding	....	129	149
Baked beans	....	165	....
Oatmeal	....	....	111
Omelet	....	....	59
Sauce	....	....	17
Cheese	....	....	39
Griddle cakes	....	....	150
Sirup	....	....	35
Cake	....	....	80
Bacon	....	....	9
February 18, 1910.			
Bread	....	132	80
Butter	....	46	43
Milk	....	305	426
Tea	....	210	....
Coffee	....	415	678
Sugar	....	60	39
Boiled potatoes	....	125	271
Boiled eggs	....	217	59
Codfish	....	189	168
Tomatoes	....	94	93
Cottage pudding	....	72	78
Charlotte russe	....	60	....
Graham bread	....	....	92
Wheatena	....	....	137
Cake	....	....	69
Sauce	....	....	33
Pancakes	....	....	117
Cranberries	....	....	28
Herring	....	....	54

TABLE 77.—*Character and amount of daily food of the individual subjects, September 8, 1909, to February 20, 1910*—Continued.

Kind of food.	Subject I K.	Subject II O.	Subject III N.	Kind of food.	Subject I K.	Subject II O.	Subject III N.
February 19, 1910.	*Gms.*	*Gms.*	*Gms.*	*February 20, 1910.*	*Gms.*	*Gms.*	*Gms.*
Bread	....	....	130	Butter	....	....	25
Butter	....	....	38	Milk	....	....	86
Milk	....	....	260	Coffee	....	....	801
Coffee	....	....	682	Sugar	....	....	44
Sugar	....	....	32	Fried potatoes	....	....	90
Boiled potatoes	....	....	313	Toast	....	....	83
Oatmeal	....	....	142	Oranges	....	....	55
Scrambled eggs	....	....	75	Baked potatoes	....	....	103
Cabbage	....	....	98	Rice	....	....	139
Custard	....	....	142	Lettuce	....	....	85
Sauce	....	....	129	Lemon pie	....	....	63
Rice pudding	....	....	146	Sauce	....	....	22
Cake	....	....	110	Cake	....	....	62
Bacon	....	....	16	Liver	....	....	102
Corned beef	....	....	136	Chicken	....	....	131
Pork	....	....	49	Roast beef	....	....	50

REFERENCES TO THE LITERATURE OF SACCHARIN.

INDEX OF THE ABSTRACTS.

REFERENCES.

MATHEWS and MCGUIGAN. Jour. Amer. Med. Assn., XLV, p. 844.

BORNSTEIN. Ztschr. f. klin. Med., XL, p. 208.

RIEGLER. Archiv. f. exper. Path., XXXV, p. 306, 1894–95.

LUTH. BAJOHREN. Berl. klin. Woch., IX, p. 280, 1906.

Acute saccharin poisoning. Mainly in Russia, where children eat it on bread. Diseases may be the result of taking it even in small doses. A woman swallowed three pieces the size of a grain of rye. Fifteen minutes after she lay on the floor the picture of dead drunkenness; face reddened, foaming at the mouth, muscles flabby, pulse rapid and threadlike, slight muscular twitchings of the trunk, choking in the throat; once the pulse stopped, the fingers twitched and scratched the floor. Heart massage and artificial respiration restored the heart action and the respiration after 30 minutes. There was much improvement.

SCAFONE. Biochem. Centralbl., III, 1808.

Doses of 2 grains per kilo in rabbits produce a general effect on the organism similar to that of substances of the same aromatic series.

ROGER AND GARNIER. Arch. de Med. Exp., XIX, p. 497, 1907.

(*a*) A series of experiments to show that saccharin, an acid, can not replace HCl in activating pepsin, although it has some activating power.

(*b*) Experiments to show the action of saccharin on HCl pepsin:

HCl.	Per cent.				
	0.31	0.62	1.25	2.5	5
0	100	100	100	100	100
1	114	62	82	89	90
2	132	55	36	82	81
4	148	54	36	72	77
8	125	42	27	64	75
	129	53	45	76	80

Representing by 100 the digestive power of pure HCl pepsin. Saccharin helps the action of small amounts of HCl at least when an excess of ferment is used. When the amount of ferment is small its action is the opposite. With the most favorable amount of HCl present (1.25 per cent) saccharin most shows the action. With 0.15 per thousand of acid the quickening action of saccharin is most marked, especially when present in small quantities. When its amount reaches saturation (4 per thousand) its action is little or none. When the saccharin is present 1 per thousand and HCl 0.15 per thousand their combined action is a little more than the sum of the two separately; for 2 or 4 per thousand it is markedly less.

The antiseptic power is very feeble.

Summation.—Saccharin may activate a neutral pepsin, due to the acidity, as is shown by the attempt to activate pepsin with neutral salts of saccharin.

Weight for weight saccharin has one-fifth the acidity of HCl. Its activating power for the same degree of acidity is less than that of HCl.

Contrary to the fact with HCl, an excess of pepsin does not inhibit the power of saccharin.

EDITORIAL, Jour. Amer. Med. Assn., 1908, I, p. 224.

A summation, without direct references, of the results of saccharin and the result that it is, as its grouping indicates, an antiseptic protoplasmic poison and therefore not safe to use.

SALKOWSKI. Virchow's Archiv, CV, p. 46, 1886.

Effect of saccharin on salivary digestion of starch.

Experiment.—5 c. c. thin starch paste; 5 c. c. water or 5 c. c. saturated saccharin solution 0.15 per cent and 0.5–1 c. c. very active saliva.

Saccharin prevented saliva action entirely. This was shown to be due to the acid reaction, for when the saccharin was first neutralized with NaH_2CO_3 there was no difference in the action of the two solutions with and without saccharin.

PROTEIN WITH GASTRIC JUICE.

(A) 50 grams moist blood fibrin, 500 c. c. water, 5 c. c. HCl of 1.12 specific gravity.

(B) 50 grams moist blood fibrin, 250 c. c. water, 250 c.c. saccharin solution, 5 c. c. HCl.

In both 20 c. c. of pepsin solution consisting of 1 gm. pepsin (Finzelberg Nachf.) per 20 c. c. water HCl (1 c. c. per 100 c. c.).

Digestion.—3½ hours at 40°. After 16 hours longer it was neutralized with $NaCO_3$, gently warmed and after cooling made up to 600 c. c., filtered through a dry filter and 100 c. c. of each of the watery filtrates evaporated to dry and constant weight, ashed, and figured to ash-free residue.

(A) For 100 c. c. 1.8191 gm. $\times$ 6=10.9146 grams saccharin.

(B) For 100 c. c. 1.8760$-$2.5$\times$0.1544=10.870 grams.

Further, 400 c. c. of each filtrate was evaporated to 100 c. c. exactly and polarized. Both gave the same reading, L. 7.1.

Experiment repeated using a *fully* saturated saccharin solution, with no difference in results.

Peptone was shown to be present by Kuhne's $(NH_4)_2SO_4$ preparation. Therefore no action on gastric digestion.

STARCH BY PANCREATIC EXTRACT.

Pancreatic extract from dried beef pancreas powder, alcohol extracted, had the same results as saliva.

TRYPSIN ACTION.

100 gm. moist fibrin, 10 gm. pancreatic powder; 500 c. c. water or 500 c. c. saturated saccharin solution mixed and weakly alkalized at 40° C.

In both the solution of fibrin took place with the same rapidity; both showed intense putrefaction in 24 hours.

ANTISEPTIC ACTION.

Saturated saccharin solution entirely prevents putrefaction of Grübler's peptone. The water control was in full putrefaction in 24 hours. When the saccharin was neutralized, putrefaction was slightly slowed but not prevented.

Chopped meat mixtures: 25 gm. meat, 100 c. c. water at 30° C., 24 hours in full putrefaction.

25 gm. meat and 100 c. c. saturated saccharin solution, only after 96 hours.

25 gm. meat and 100 c. c. neutralized 48 hours only very weakly antiseptic.

ANIMAL TESTS.

Dog 6,650 gm., fed 250–300 gm. mixture of meat, 50 gm. bacon, 200 c. c. H_2O, and from 1 to 2 gm. saccharin (7 days, 1 gm.; 3 days, 2 gm.). No untoward effects. Gained 450 gm. in 10 days. A second dog turned out similarly, except that on the fifth day *he refused the sweetened* food and the research had to stop.

Rabbit 1,926 gm., fed potatoes, bread, and carrots, and 0.15 gm. saccharin in water per stomach tube, 12 days. Nothing abnormal. Loss in body weight 62 gms., due to confinement. Another, same result. Loss, 25 gm.

Intestinal decomposition prevention by saccharin gauged by amount of ethereal sulphates present in urine. (See table below.)

Day.	Food.	Saccharin added.	Urine.	Specific gravity.	Product 4 and 5.	H_2SO_4 as $BaSO_4$.		Relation, H, *b* and *a*.
						a, inorganic.	*b*, ethereal.	
		Gm.	*c. c.*					
1	Daily 300 gm. meat, 50 gm. bacon.							
2								
3								
4								
5		1	500	1.026	1,300			
6		1	750	1.019	1,425	2.7030	0.2100	1 : 13.2
7		1	750	1.013	975	2.0065	.138	1 : 14.9
8		2	760	1.016	1,216			
9		2	520	1.022	1,144	2.4586	.1497	1 : 16.6
10		2	520	1.028	1,456	3.4632	.2239	1 : 15.4
11		0	600	1.019	1,140	2.0238	.1458	1 : 13.8
12		0	840	1.020	1,680	2.4524	.2581	1 : 13.3

A slight relative lessening of the ethereal sulphates by saccharin. Separated saccharin unchanged from urine and succeded in separating out the *p*-sulphamin benzoic acid, with which he was at that time unfamiliar.

Ibid. Virchow Archiv, CX, p. 613.—S. shows that his above assumption is correct and that the *p*-acid is present in the original trade saccharin.

Ibid. Virchow's Archiv, CXX, p. 325.—A further continuation of the proof of the presence of *p*-sulphamin benzoic acid in saccharin and a discussion of the possibility of its presence being due to changed *o*-acid in the same way as in phenolsulphonic acid (aseptal) by simple standing in water solution. This he shows not to be true for *o*-sulphamin benzoic.

Whether all the saccharin present on fusion with KaH will yield salicylic acid he thinks not provable, because some at least will be changed to phenol by overconversion. The *p*-sulphamin benzoic will form *p*-oxybenzoic. Saccharin can not be changed to *p*-sulphamin benzoic by boiling. No difference on boiling 24 hours.

AS TO THE EFFECT OF SACCHARIN ON HEALTH.

No doubt that it is not of itself a poison. (Mercier took 5 gm. for 14 days successively.)

It does not increase protein metabolism.

Criticizes the French Commission (Ann. de Hyg. Pub.). Their experiments had no "controls." Their bad results may as well be due to idiosyncrasies of the dogs as to any action of the saccharin, distaste for food, change of food, etc.

Repeating his experiments with starch he tries the inhibiting (8 c. c. paste 1 per cent, 1 per M of acid or saccharin, 1 c. c. saliva) action not only of saccharin but of other organic acids. He finds organic acids inhibit salivary action, but very differently. *Acetic less than saccharin, tartaric most.* This is more to be noted since the acidity of the 1 per cent HA is greater than that of the 1 per cent tartaric (this he assumes on the basis of the relation of molecular weights should be on their ionization or H ions free).

A second series of experiments along the same line.—Saccharin 1–5000 scarcely any inhibition; tartaric 1–5000 marked.

A sour wine (Mosel) inhibited the starch change as much as a saccharin solution 1–500. This is shown more markedly on dilution. He shows thus that the inhibitory action of saccharin is due to its acid properties (p. 347, bottom).

He obtained results with saliva on starch just the opposite to Plugge.

Starch paste (1 per cent) 10 c. c.; two portions.—(*A*) 2 c. c. water; (*B*) 3 c. c. 1 per cent saccharin solution, 0.02 saccharin. To each added 1 c. c. of 2–3 times diluted saliva. Concentration of the saccharin solution, 1 : 650. Action of the two solutions exactly the same. In both the starch (blue) gives place to dextrine (red) almost immediately.

A second experiment, where the concentration of the saccharin was 1 : 120, there was no noticeable difference. The change was very rapid.

A third experiment, where only a drop of 1/3 saliva was used. Here the progress was slower. Sugar showed only after five minutes and twelve to fifteen minutes was necessary for the starch to disappear. The change in the saccharin mixture was somewhat more rapid.

Another experiment with stronger saccharin and very dilute saliva (1/20): 10 c. c. S. paste, 1 c. c. saccharin or water (0.1 gm.), 1 c. c. 1/20 saliva. After 5 minutes saccharin free, good blue color; after 5 minutes saccharin present, muddy violet; after 30 minutes saccharin free, still good test for erythrodextrine; after 30 minutes saccharin present, scarcely any color. Saccharin favors the starch splitting.

Not the slightest ground for the assumption that saccharin in the doses ordinarily given has any effect on starch digestion, either salivary or pancreatic.

PROTEIN DIGESTION.

Hard boiled egg albumin finely minced and mixed, 10 gm.; HCl (2.8 gm. abs. per liter), 86 c. c. used; acid pepsin solution (Finzelberg's 5 per cent pepsin and 1 per cent HCl (sp. gr. 1.12, 25 per cent)), 4 c. c. used; 40°–42° for 7 hours.

Saccharin 1–1000, no effect; saccharin 1–400 and stronger, a marked inhibitory effect. The criterion here used was the visible action. The same results were obtained if the quantity of peptonized protein was used as a criterion as follows (experiment not given): Digestion ran 22 hours. Exactly neutralized, heated to boiling, cooled, made up to 150 c. c. and 25 c. c. filtered off. In this the N was determined and figured to protein (×6.25). In the saccharin mixture 89.33 per cent of the control protein was digested in the 22 hours.

Both the constituents of trade saccharin (saccharin and *p*-sulphamin benzoic) *inhibit gastric digestion* (tests given), but pure saccharin most (pure saccharin m. p. 212). Gans claimed that the inhibiting action of saccharin in large doses was due to the excess of insoluble saccharin carrying down the ferment with it. Salkowski believes, however, in a specific action of the drug on protein digestion.

Influence on intestinal digestion (trypsin), none.

Experiment.—To two portions of alkaline $CHCl_3$ water (500 c. c. $CHCl_3$, water 1 c. c., $NaHCO_3$ conc.) of 100 c. c. each was added 2 gm. pancreas powder. After 1 hour's digestion at 40° this was filtered through a dry paper. Portion A, 5 c. c. water; portion B, 5 c. c., 10 per cent saccharin. To each 5 gm. hard-boiled egg albumin in a glass-stoppered flask. Digested 20 hours. Slight residue in each. In A, 0.0916 gm. dried residue. In B, 0.0960 gm. dried residue. Solutions gave intense biuret reaction and yielded on evaporation leucin and tyrosin.

Comparison of saccharin and sour (acid) wine on pepsin digestion.

	Per cent digested.
A. 95 c. c. H_2O; 1 c. c. HCl; 4 c. c. pepsin	82. 8
B. 95 c. c. H_2O; 1 c. c. HCl; 4 c. c. pepsin+0.22 gm. sacc	80. 2
C. 95 c. c. wine; 1 c. c. HCl; 4 c. c. pepsin	63. 9

Eight hours digestion.

COMPARISON OF SACCHARIN AND CANE SUGAR.

For same sweetness as above (1–500) requires 50 per cent cane sugar. Digestion tested as above showed a digestion of only 50.7, *showing that a sugar solution of the same sweetness disturbs pepsin digestion in vitro* much more strongly than saccharin.

(The N determination in this case was made on the precipitate thrown down on neutralization and not on the solution.)

That these facts from *in vitro* digestion do not apply in the actual processes seem to be pretty amply shown.

PLUGGE. Schmidt's Jahrb., CCXXI, p. 140, 1889.

All experiments at body temperature.

0.03 per cent solution of saccharin completely stopped ptyalin action; even after 6 days there was no sugar present.

0.02 per cent saccharin, sugar only after 96 hours.

Stomach digestion.—0.33 per cent protein (egg albumin) and saccharin. Noticeable change only after 24 hours and complete solution only after 4 days.

Same without saccharin, change in 4 hours, solution in 16 hours.

In a mixture of 100 c. c. gastric juice (0.02 per cent HCl, 1/7 gm. Witte's pepsin) 6 gm. hard-boiled egg albumin:

	Grams.
Undigested protein in 18 hrs	0. 0193
Same with 0.1 per cent saccharin	. 733
Same with 0.2 per cent saccharin	1. 666
Same with 0.3 per cent saccharin	2. 506
Same with 0.4 per cent saccharin	3. 640
Same with 0.5 per cent saccharin	3. 653

Similarly he tested the action of saccharin on intestinal digestion.

Action on pancreatic juice not so marked.

Sugar splitting was hindered by saccharin.

Starch with pancreatic extract (glycerin) complete in 2½ hours. Same with saccharin 0.1 per cent, not at all in 16 days.

Even after neutralization the action of saccharin was marked.

Saccharin must not be used in diabetes or as a substitute for sugar in food.

WORMS. Bull. de l'Acad. de Med., Franc., 1888, p. 504.

Cases.—Diabetic of 25 years' standing, 66 years old. 0.06 gm. per day in tea. In 10 days, failure of appetite, nausea, distaste for food. Stopped at once when saccharin was stopped.

Man, 68 years; persistent diabetic of long standing (18 years). Sweetened his coffee or tea for 25 days with saccharin. Then followed anorrhexia, feeling of pressure in epigastric region. No change in urine. Symptoms abated after stopping the saccharin and normal in 6 days.

Woman, 30 years old; intermittent diabetic. Kept within 6–8 gm. sugar per day by diet and 0.2 gr. per day. Took 0.10 gm. saccharin in coffee for three months without effect.

Man, 50 years; diabetic intermittent; 5–12 gm. sugar per day during part of the year and during part none at all. Hunger or thirst not exaggerated. Also took quinine for several years. Took 0.1 gm. saccharin daily in coffee for 15 days. Urine did not vary. Had to stop because of *lack of appetite*, painful sense of pressure in epigastric region, disagreeable sweet taste in mouth. Stopped. Recovered in 8 days. Resumed, and at end of 8 days had to stop again.

In reply to Worms, in the same article, Dujardin Beaumetz states that he had tried saccharin on many patients—diabetics—without any bad effects whatever. He

ascribes Worms's bad effects to "impurity of material"; defective kidneys which do not eliminate it; inhibition of the gastric juice because of antiseptic nature.

CONSTANTIN PAUL. Bull. de l'Acad. Med., XX, p. 32, 1888.

Saccharin as an antiseptic is nontoxic, noncaustic, has no color, no odor, and has an agreeable taste. Experiments by Kugler. Saccharin rendered soluble in $NaHCO_3$.

Fibrin, 2 per M.—Pepsin 0.2 gm., H_2O 60 c. c., HCl 0.6 gm., hog fibrin. With and without saccharin 45° to solution of the fibrin. Flask without saccharin dissolved before the saccharin mixture had been scarcely attacked.

Albumin.—Pepsin 0.2 gm., H_2O 60 c. c., HCl 0.6 gm. Two flasks; in one, water; in other, saccharin 2 per M. 45° water, dissolved saccharin, scarcely touched.

Starch.—Starch 10 gm., diastase 0.5 gm., H_2O 60.0 gm. Saccharin as above 60°. Saccharin flask has less dextrine and glucose than the control.

Result: *Inhibits all ferment action.*

SOURING OF MILK.

(1) Saccharin itself produces coagulation as an acid.

(2) Sodium salt of saccharin hastened coagulation somewhat.

Experiments repeated by Dr. Marfan (Fehlberg's S. neutral $NaHCO_3$) on urine. Inhibits ammoniacal fermentation in doses of 0.09 to 0.18 per cent and almost completely stops it when dose is 0.45 per cent (1–200). Staphylococcus py. aur. : 1–500 saccharin in gelatin peptone prevents growth. Bacterium termo (?) · 1–200 saccharin in gelatin peptone prevents growth. Streptococcus of puerperal fever : 1–300 retards but does not stop growth. Microbe of typhoid. No effect.

NEUMANN. Münch. med. Woch., 1901, p. 1061.

Thirty-day experiment with saccharin consisting of a 6-day period, a 19-day period, and a 5-day after-period. Food · 200 gm. beef, raw, minced; 400 gm. rye bread; 90 gm. hog fat; 200 gm. condensed milk (cream). 17.86 gm. N (111.6 gm. protein), 116.5 gm. fat, 254.8 gm. carbohydrate.=2,585 cal.: also about 1,500 c. c. water and 10 gm. salt per day. Alcohol, tea, and coffee avoided.

Day period (7 a. m. to 7 a. m.).—Kjeldahl for urine and feces. Saccharin taken as follows (1 tablet=0.0175 gm. pure saccharin): First two days, 6 tablets=0.1050 gm. sacch.; then for three days 10 pastiles (0.175 gm.); later rose to 15, 20, 50 tablets (up to 0.875 gm.); sodium saccharin preparation, 1 pastile=0.0175 gm. pure saccharin= 12 gm. sugar. Later he took up to 3.5 gm. in capsules holding 0.35 gm. (1 per hour), with hot (or warm) water to help the solution in the stomach.

Results.

	Feces, air-dried.	Urine.	Urine N.	Feces N.	Total N.	Balance.
Fore period	39.7	1,245	15.02	2.81	17.83	+0.03
Period	39.2	1,310	15.04	2.78	17.82	+0.04
After period	39.3	1,250	15.15	2.82	17.98	+0.06

CRITICISM OF BORNSTEIN'S EXPERIMENTS.

(1) Did not analyze his butter, sugar, chocolate, coffee, cream, or apfelcompot.

(2) Bornstein *is the only one who complains of diarrhea*, and that only in his first experiment.

(3) His organism was too sensitive to the abnormal conditions.

In his own case there was nothing abnormal.

The taking of saccharin in doses of from 0.1 gm. to 3.5 gm. in 20 days had no effect on the protein anabolism and did not disturb the N equilibrium. There is a rise

in urine during the main period, but since the total N is not increased, this means nothing.

Results.—Saccharin has no effect either on the general condition or protein metabolism. Bornstein's claim of a slower absorption means nothing, for cane sugar in large amounts has the same effect.

CHASSERANT. C. R. Soc. de Biol., LIII, p. 206, 1901.

Method of Mette (solution of coagulated albumin in glass tubes).—Very active gastric juice at end of 24 hours measured the amount dissolved, giving a value of 100 to the control.

	Per cent.
0.04 per 100	58.4
20 per 100	29.3
40 per 100	7.3
Control	100

SCHMITT. C. R. Soc. de Biol., LIII, p. 373, 1901.

Cites Nencki (Gazeta Lekarska), who attempts to settle the question whether saccharin inhibits peptic digestion more than sugar solution of equal sweetness. He (Nencki) studies at the same time the action of alcohol (Rhine wine).

Preparation.	Digested.
	Per cent.
1. H_2O, 95 c. c.; HCl, 1 c. c.; pepsin, 4 c. c.	86.7
2. Same with 22 c. c. 1-500 saccharin	85.2
3. Rhine wine, 95 c. c.; HCl, 1 c. c.; pepsin, 4 c. c.	66.1
4. Like No. 3+sugar, 50 gm	66.9

In each, 10 gm. white of egg, 24 hours at 38°. The amount of undissolved albumin then determined, from which he concludes that saccharin inhibits the digestion less than either alcohol or sugar.

Schmitt calls attention to the fact that the wine mixture with sugar in it has 0.8 per cent more digested than that without the sugar and figures that if water had been used instead of alcohol here the amount digested would have been 87.5 (?).

Berlioz found that saccharin inhibits digestion less than sugar.

Schmitt's own experiments, following Gautier's method: Fibrin purified by Henniger's method. Merck's pepsin for the first; same prepared from hog's stomach for the second.

	I. Merck's pepsin.	II. Sugared solution.
Moist fibrin ... gm	5	5
HCl 6 per cent ... c. c.	50	50
Pepsin 1 per cent ... c. c.	25	25
Saccharin 1-500 ... c. c.	25	....

No precipitate in HNO_3 in I after 11 hours 45 minutes; in II, 13 hours 10 minutes.

Second series (with hog's stomach extract): Saccharin mixture, 1 hour 30 minutes; sugar, 1 hour 45 minutes, showing that saccharin does inhibit less than sugar, and that this is not due to the viscosity of the sugar, because it is being constantly diluted by fresh gastric juice.

KELLER. Centrlbl. f. inn. Med., XIX[2], p. 797, 1898.

In his experiments noted no effect, good or bad, with saccharin. Children took saccharin-sweetened milk as readily as sugared and more readily than unsweetened.

Prefers saccharin to sugar for sweetening because it produces no diarrhea.

He has found also that in babies with gastro-intestinal disturbances *all the sugars increase the ammonia excretion in the urine*, which may be decreased again by alkalies, which shows that the sugars increase the formation of acids which the sick organism can not burn up. This does not happen when saccharin is used as a sweetener.

Gives three sets of experiments to show this.

As to whether, as Bornstein states, saccharin decreases resorption in the intestinal tract, he gives three sets of observations where saccharin was used as a milk sweetener in from one and one-half to two tablets per day (more per body weight than Bornstein's 10). 1 liter milk, two tablets added when ready to be fed.

A. Child 2 months; gastro-intestinal disturbance. Resorbed N=84.5 per cent.

B. Well-nourished child, 5 months; weight, 5,300 gm. Resorbed N=95 per cent.

C. Artificially fed from birth; long-continued gastro-intestinal disturbance; fed first on malt extract, gained weight, changed to milk sweetened with sugar, lost weight; changed to malt extract, rapidly gained again, and then (age 9 months, weight 3,690 gm.) started in on one-third milk with one and one-half saccharin tablets. Resorbed N=93 per cent.

Conclusion: Saccharin may well (better) be used instead of sugar as a sweetener for babies' food.

JESSEN, F. Archiv f. Hyg., X, p. 64, 1890.

Taste saccharin pure 1–90000, S solution 1–76000.

Rabbits (*a*) 1,670 gm. weight; (*b*) 2,220 gm. weight; given each solution 5 gm. saccharin with stomach tube. No effect.

Self, taken 5 gm. per day without any bad effects.

Again experimented on 9 persons for three months—himself, 4 strong men, 4 children, ages 10 to 12. Dose, 0.1 gm. sol. sacch. per day for one month, 0.2 gm. per day for two months. No change; no symptoms of gastric juice disturbance; no albumin or sugar in urine.

EFFECT ON SALIVARY DIGESTION OF STARCH.

Fresh filtered saliva, 1 c. c.; 5 c. c. 0.5 per cent starch; inhibits the reaction, due to the acidity. When neutralized or when neutral Na saccharin is used there is no inhibition.

STOMACH DIGESTION.

Fluid prepared by Hoppe Seyler's method of HCl or hog stomach, saccharin, pure, varying from 0.04 to 0.16 per cent. Even 0.04 per cent inhibits somewhat; larger amounts very much. Soluble saccharin has the same but weaker effect; therefore the action is specific.

ACTION OF SACCHARIN ON UTILIZATION OF FOOD.

Took beefsteak and charcoal, then for two days milk only (3 liters per day); finally beefsteak and charcoal and Heidelbeercompot, 300 c. c. Each day 1 gm. saccharin solution in 100 c. c. H_2O.

Results.—The food was almost completely utilized and in comparison with the average ordinary utilization is especially good.

Previous to this research he had taken 0.2 gm. saccharin per day for three months.

STAY OF SACCHARIN IN THE BODY.

After taking 5 gm. saccharin took urine per half hour. Appears first in one-half hour. After 2½ hours only traces. After 24 hours, none. Test sweetness of ethereal extract of watery urine after evaporation of E.

ANTIBACTERIAL ACTION.

I. Ammonia fermentation of urine: 0.01 per cent pure saccharin prevents it for 24 hours; larger dose indefinitely.

II. Lactic acid bact. both slowed in concentration of 0.2 per cent.

III. Protein liquids: Saccharin pure, 14 days unchanged; saccharin solution, no effect.

IV. Mold in water: Saccharin pure hindered; saccharin solution aided development, therefore used as a food in a poor food medium (creek water).

V. Pathological—cholera, typhoid, etc.: In a good medium saccharin did not inhibit the growth.

VON JAKSCH. Die Vergift. Nothnagel, Vol. I.

In many cases where he used it for diabetes he found it poisonous.

ABELAS. Wien. med. Woch., 1887, p. 789.

Tried on diabetics who had been under treatment for some time and who either excreted sugar no longer, or else indefinite amounts. Doses 0.1 to 0.5 gm. per single dose. No influence on sugar excretion or on general condition.

GANS. Berl. klin. Woch., 1889, p. 281.

Used stomach fluid withdrawn with a tube and filtered, and used only that which showed markedly acid.

Saccharin turns Congo paper azure blue; tropeolin paper, weak brown; methyl violet, intense sky blue; tropeolin in evaporating dish, cherry brown. Phloroglucin, vanillin, and resorcin, no color.

0.02 albumin plates used; 40° C. 0.05 gm. saccharin 1 hour: Slows pepsin action markedly; may be due to the powdered form of the substance carrying the ferment. If the saccharin was first put into solution there was no such marked effect.

Saccharin neutralized had no effect on the milk-curdling ferment of the stomach. Free saccharin (acid) aided it.

Conclusion.—Saccharin has no bad effect on peptic digestion.

DIGESTION OF ALBUMIN PLATES WITH INTESTINAL JUICE.

Solution saccharin, no result; saccharin pure, inhibitory, due to mechanical action.

Antiputrefactive action of saccharin (0.05 gm. to 10 c. c.) on intestinal contents.—0.05 gm. prevents putrefaction for weeks. Prevents formation of phenol, skatol, etc.

Observed its favorable action on diarrhœa.

BORNSTEIN. Verhandl. des Cong. f. inn. Med., XVI.

A rehash of the subject and of his own experiments. In the discussion, Dr. Thomas speaks favorably of it in certain child feeding. Wyss, medicament and not a substitute for a food; Von Jacksh objects to the name and to its use as an intestinal antiseptic, for the reason it inhibits gastric juice action, and since intestinal putrefaction is a necessary step. Indicated in certain definite cases.

CANTANI. Deutsch med. Woch., XV, p. 278, 1889.

On diabetes.—May in certain cases be harmless in satisfying the desire of the diabetic.

BRAUARDEL, POUCHET, OGIER. Annales d'Hygiene Publique, 1888, p. 300.

Experiments of Dr. P. Laye on germination of seeds (Cresson alénois): Saccharin 1–1000 slows very much; 1–500 stops completely. Result the same when neutralized.

Beer yeast: Acid saccharin 1–1000 inhibits; neutralized saccharin, no effect.

ACTION ON SALIVARY DIGESTION.

20 c. c. starch paste 1 per cent; 32 c. c. fresh starch paste; 2 gm. saccharin, 44° for 1 hour. Result: Activity one-third that of control. Same with neutralized saccharin. No appreciable slowing.

ACTION ON PANCREATIC DIGESTION.

Fresh dog pancreas in distilled water. Filtered. 20 c. c. starch paste 1 per cent; 3 c. c. pancreas infusion—saccharin? Temperature, 50° for 1 hour.

10 c. c. starch paste 1 per cent; 3 c. c. pancreas infusion, 0.02 gm. saccharin. Temperature, 42° for 20 minutes.

Another with neutralized saccharin.

Result.—Saccharin 1–2 per M suppresses or greatly slows the action of pancreatic juice on starch. No effect when neutralized.

ACTION ON GASTRIC JUICE.

11 c. c. gastric juice natural; HCl 4 per M, 5 c. c.; coagulated egg white 2 gm. 0.05 saccharin. 40° until control is digested.

12 c. c. gastric juice; 10 c. c. 4 per M, HCl; egg, 2 gm.; saccharin, 0.05 gm. 40° as above.

Results.—Saccharin at 2 or 3 per M slows the action of gastric juice.

POUCHET'S EXPERIMENTS.

Similar, only using pepsin (Hottot's), temperature 38–39°; saccharin, 5–50 cgm.

Results.—Same as above.

CONSTANTIN PAUL'S EXPERIMENTS.

See detailed abstract of this, page 217.

ADUCCO AND MOSSO.

Fasting dog fed 5 gm. saccharin daily, along with good food, gained 5 kg. in 11 days.

Saccharin passes out in the urine, never in the milk (nursing woman), nor in the saliva. Appears in the urine in less than half an hour.

EXPERIMENTS OF OGIER, BRAUARDEL, AND LAYE.

Ogier.—Three dogs, saccharin for one month. (*a*) 1 gm. daily; (*b*) 2 gm.; (*c*) 3 gm. Fahlberg's saccharin; (*d*) control dog.

Dog (*a*) died after three weeks. Paralysis of hind quarters, diarrhea, conjunctivitis and keratitis of the left eye. Post-mortem showed broncho-pneumonia of right lung. Other organs normal. This is what often happens to young dogs, therefore he did not ascribe it to the saccharin.

The other dogs, slaughtered at the same time, showed everything normal. Slight gain in weight.

Conclusion.—Saccharin does not influence the health of dogs.

BRAUARDEL AND LAYE.

Two like dogs, fed one also 1 gm. saccharin. Killed after 3 hours. Digestion equally advanced in both.

Dog, weight 5.2 kg.; 0.3 gm. saccharin daily, urine, urea, and weight taken.

	Weight.	Urine.	Urea.
	Kg.		
June 12, no saccharin	5.2	200	3.22
13, 1 gram saccharin	5.23	102	2.34
20	5.28	120	2.38
25	5.33	156	2.38
30	5.34	172	2.61
July 5	5.18	444	3.03
10	5.36	420	2.37
15	5.55	189	5.82
20	5.33	174	1.86
25	5.22	80	2.85

Appetite stayed normal.

Dog, weight 6.73 kg.; 3 dcg. saccharin per day for 39 days. A regular loss of weight during the whole time. Lost 1.2 kg., or about one-fifth of his weight. Some loss of appetite.

Dog, 18 kg.; 1.5 gm. Mercier's solution saccharin per day. Loss of weight regularly as above. Total loss 2.7 kg., or one-seventh of weight. A profound distaste for the saccharinated food after some days.

POUCHET'S EXPERIMENTS.

Dog, weight 13 kg.; rectal temperature 39.6° at injection; 4.45, injected 100 c. c. containing 10 gm. saccharin neutralized with $NaHCO_3$; 6, temperature 38.4°, drew 15 c. c. blood, demonstrated methæmoglobin. After 1 hour the dog was normal again. Very thirsty. Next morning, temperature 38.2°; evening, 39.4°. 495 c. c. urine in 14 hours which kept for 4 days without change. Reaction strongly alkaline. Appreciable amount of saccharin in the feces, which were colored green, as though the saccharin had some action on the biliary secretion.

Later, 0.50 gm. saccharin per day for 49 days, in food. On third day dog refused the food and the saccharin was given per tube. At end of time condition absolutely normal, except that the feces retained their green color, which ceased a short time after the saccharin was withdrawn.

Another dog: April 24, weight 5.3 kg.; 0.1 gm. saccharin for 9 days; then 0.2 gm. for 41 days. Animal steadily lost weight. June 16, weight 2.91 kg.

Paralysis of hind quarters; later, of all. Loss of sensibility; death, after having lost nearly one-half his weight. Organs sound.

Another dog, given 3 gm. per day, showed steatose (tumor of the epithelial cells).

BRUYLANTS. Bull. de l'Acad. Roy. de Belge, 1888, II, p. 494.

Took doses of 0.5 gm., 1.0 gm., 1.5 gm., and 2 gm., and in each case examined the urine for 24 hours after.

Urine examined as follows: 24-hour urine; add slight excess of $BaCl_2$ and $Ba(OH)_2$; raise to boiling, then filter, and evaporate to dryness. Extract in 98 per cent alcohol, evaporate the alcohol, and dissolve this residue in water. Heat to 80°, pass a current of (acid azoteux) until no more CO_2 is evolved. Neutralize with K_2CO_3 and evaporate to dryness. Fuse the residue with mixture of K. carb. and nitrate. From this fusion determine sulphuric acid.

Results.—Figuring on commercial saccharin as one-half saccharin, 20, 18, 16, 12 per cent saccharin absorbed.

(Other figures given of which above is abbreviation:)

II. A milking goat (brebis) fed (*a*) 1 gm., (*b*) 2 gm., (*c*) 5 gm., saccharin; and the milk examined. (*a*) none; (*b*) trace; (*c*) marked saccharin. Identified by Schmitt's and the fluorescence reaction.

Fermentation, alcoholic, 1 per cent inhibits but does not stop; 0.013 per cent, none.

Fermentation, acid (beer), 0.25 per cent does not ferment.

There is a difference between its effect on lactic and acetic fermentation. Details of experiment given.

Putrid fermentation: A minimum of 2.5 per cent saccharin neutralized is needed to prevent. (Details given.)

Peptic fermentation, scarcely influenced; pancreatic fermentation, markedly slowed; no details.

TESTING FOR SACCHARIN IN BEER.

(1) Neutralize with Na_2CO_3; evaporate to sirup and pour the residue into 2 to 3 times its volume of strong alcohol. Let stand some hours; filter. Evaporate off the alcohol. Dissolve in water to 125–150 c. c. Acidify strongly with phosphoric acid. Extract with ether, allowing contact for at least an hour. Evaporate off the ether. Identify by

(1) Transformation to salicylic: Heat in an excess of alcoholic potash to 250–270° for some time. Dissolve; neutralize exactly with HCl and test in $FeCl_3$. Compare color with standard to determine the approximate amount.

(2) The fluorescence test: The ether extract is dissolved in water, neutralized with Na_2CO_3 and treated with excess of $Hg(NO_3)_2$. Filter wash, dry between filter paper. Place in test tube, add 2 vol. resorcin and fuse. Add a few drops of H_2SO_4 and warm. Gives off SO_2. Let cool, add a little water and excess of K or NaOH. Liq. of r. b. color with green fluorescence. This is very marked on dilution.

Petschek and Zerner. Centralbl. f. ges. Ther., 1889, p. 321.

Researches with starch paste and saliva and diastase. Saccharin inhibits when pure (acid); neutralized, no effect.

With gastric juice and fibrin, like Salkowski. No inhibitory action if the saccharin were completely dissolved or neutralized (mechanical carrying down).

With gastric juice and fibrin, according to Grützner's colorimetric method. Digestion proceeded equally well with and without saccharin up to 1–100 and at temperatures from room temperature to 40°. Also similarly, with artificial and natural (by Ewald's expression method) juice.

TESTS ON HUMAN BEINGS (USING TEST MEAL OF RIEGEL).

There was a preliminary period of the test meal without saccharin in which the digestion time, the acid reaction with phloraglucin vanillin, lactic acid with Uffelmann's reagent on the ether extract, and the acidity by titration with litmus, were observed. The filter residue was examined microscopically.

Used an elastic, soft stomach tube of about 0.6 cm. diameter, with opening below and others on the sides.

The juice was obtained by Ewald's method, using the Bauchpresse, in which case it was often sufficient to take a deep inspiration and expiration.

With saccharin of 0.05–0.3 gm. the results were uniform in all subjects examined, allowance being made for the ordinary psychic effects, etc.

When 0.5 gm. per day was used, the *lactic acid* reaction almost disappeared, and with 1 gm., entirely. Digestion was much hindered. Even after 6 hours there were muscle bundles scarcely attacked. Strongly acid, very sweet.

With large doses of the acid saccharin, the digestion was much hindered, probably by the mechanical action of the undissolved saccharin; for when soluble saccharin was used, even up to 5 gm., there was no observable difference from the control. Gastric juice raised in the fifth hour reacted strongly acid and tasted very sweet. Free HCl was present.

Acidity same as before saccharin was administered.

Microscope: Only amylaceous and elastic tissue residue.

Digestive power (tested on egg white) same as in normal.

Repetition many times gave same results.

Conclusion.—The Na salt has no effect on gastric digestion.

Pancreas, on starch.—Acid reaction only. Conclusion: Neutral saccharin (Na) has no ill effect on the human system.

Personal experience.—Used saccharin (Na) for several weeks as a sweetener without the slightest ill effect. Observed a large number of individuals who took, during 8 to 10 weeks, 5–10 gm. without the slightest harm. There was not (Elsässer and Kohlschütter) any reexcretion in the saliva and therefore no sweet taste in the mouth.

Excreted through urine *only*, beginning in one-half hour and complete in 16 hours (ave.). Soluble form more quickly.

Used in some fifty cases of various kinds from 0.1 to 10 gm.

Conclusion.—Useful only as an antiseptic and a sweetener.

Secretion of sweat not influenced.

Saccharin is entirely excreted in the urine, possibly as NaC. Does not excite kidney to albuminuria, even when sensitive (contra Girard, Sitzung in Genf.), even 10 gm. per day through several weeks.

Reduces intestinal putrefaction and therefore ethereal sulphate of + origin in urine.

Slight antipyretic action.

No influence on cystitis or on *Micrococcus ureae* (contra Limbeck).

Rinsing out bladder with saccharin, no more effect than ordinary rinsing.

Cases of diabetes (not specially described) who had used saccharin during a year without bad effect.

Fischer and Rakow. Therap. Monatshft., 1887, p. 395.

Review of the subject and their own experiments with flies, bees, and wasps which refused to touch it.

Hofmeister. Wiener Klinik, 1890, p. 150.

"I have never known it to be injurious, either to digestion or in any other way."

Kohlschütter and Elsässer. Deutsch. Arch. f. klin. Med., XLI, p. 178, 1887.

A diabetic, 30 years old; 3 years in hospital.

Table of use of saccharin and amount of sugar and urine.

Number of days.	Urine, per day (average).	Sugar (average).	Saccharin.
	c. c.		*Gm.*
5	3,650	320.7	0
6	3,540	271.8	1.0
2	4,125	344.8	0
4	3,166	259.5	1.5
1	3,250	290.2	0
2	2,750	229.2	2
4	3,000	261.2	0

Given in pills or capsules. Sugar by Fehling's. Three doses per day.

Results.—On the saccharin days the urine and sugar production fall. The more saccharin, the greater the fall. *During the saccharin feeding, however, the patient had a sweet taste in the mouth, lacked appetite, and did not eat so much.* The sweet taste in the mouth was strongest after the largest doses of saccharin and disappeared when the saccharin was stopped.

The body weight, which during the course of the disease slowly lessened, remained stationary and slightly higher (32.31 kg.) during the saccharin feeding.

Kuhn. Zeitschr. f. klin. Med., XXI, p. 572, 1892.

Action of saccharin as an antiseptic in preventing stomach and intestinal fermentation and gas formation.

Fermentation tests *in vitro.*

0.05 per cent saccharin has a strong inhibiting effect; not completely stopped by larger doses.

It and salicylic are the two best found.

HEDLEY. Therap. Monatsh., 1888, p. 114.

A case of a diabetic after 12 to 15 doses on the fifth day, a sweet taste in the mouth. Everything that came into his mouth, even his pipe, tasted sweet. Relief by leaving off the saccharin.

HASTERLIK. Chem. Zeitung, 1899, I, p. 267.

The Bornstein reaction for saccharin (resorcin and H_2SO_4) will be given by succinic acid, and therefore this reaction is useless in the investigation of ferment products. Also cumarin.

CHEM. ZEITUNG, 1899, p. 536.

The Russian minister of finance issues a proclamation forbidding the manufacture of saccharin in or the import into the Russian dominions.

NENCKI. Chem. Ztg. Repert. Cited by Buratschenko in Farmazeft., VII, p. 1130, 1899, from Gazeta Lekarska.

Digestion experiments *in vitro*, using pepsin and egg white coagulated and graded amounts of saccharin; also experiments using concentrated sugar solution and Rhine wine instead of saccharin.

Found: That saccharin inhibits peptic digestion in proportion to the amount present. Sugar solution of the same strength inhibited digestion more than saccharin.

Alcohol in ordinary wine disturbed digestion more than the amount of saccharin ordinarily used in food.

BERLIOZ. Chem. Zeitung, 1900, p. 416.

A check on Nencki's work, using strong pepsin solution and letting stand 17 hours at 38°.

Found: Saccharin interferes with either stomach or pancreatic digestion hardly at all and less than the equivalent weight of sugar.

No account is taken of the *rate* of digestion.

STIFT. Zeitschr. der Ver. Rukenzuckind., 1898, p. 933.

In an 8-day research he showed that saccharin has a slight purgative action (shutting out all other causes). Also there is a decreased appetite to which, because of the shortness of the period, he gives no value. Hence he believes saccharin to be harmless.

Later tests with rabbits showed that saccharin had a slowing action on absorption and digestion. Less and less food was taken; the feces lost their fine consistency and took on a fragmentary appearance and had a very bad odor. Breathing irregular. Finally, after the saccharin was cut off, the animal did not recover and was poisoned to stop his sufferings.

Two dogs which had been used to sugared food refused food with saccharin.

Tried also on a falcon. This bird had been accustomed to taking sugared food, but refused food with the same sweetness of saccharin.

WANTERS. Moniteur scientifique, (4) X, p. 146, 1896.

Detection of saccharin in beers. Specific gravity. Review of other methods of which the author prefers that of Schmitt (fusion with NaOH for salicylic). Found delicate to 1 cgm. per liter.

1521°—11——15

ABRAHAM. Chemisches Centralbl., 1899, I, p. 545.

Tried substances which on fusion with NaOH give a reaction with $FeCl_3$. None tried gave the characteristic bluish-violet.

Hops, Süssholz, sugar, colocynth, gummilac, copal, gum dammar, sandarack—not a trace.

Tragacanth, Fieberkler, dirty green.

Enzian extract, brownish blue; aloes, dirty brownish blue.

Cinchona bark, Brechnuss, absinth, orange peel, intense green.

VITALI. Chem. Centralbl., 1899, I, p. 1297 (from Boll. chim. Farm., XXXVIII, pp. 297–300).

Used in detecting saccharin in wines the following methods: (1) As sulphate; (2) by the color with Na nitroprussid; (3) driving off the ammonia and recognizing by Nessler's reagent; (4) changing to Hg compound (by treating the ether residue with $Hg(NO_3)_2$), drying and weighing, decomposing with H_2S and weighing again and from this calculating.

KASTLE. Chemisches Centralbl., 1906, I, 2, 1574.

Reagent for saccharin mixture of 5 c. c. phenol and 3 c. c. pure concentrated H_2SO_4. Heat 5 minutes to 160° to 170°; pour into a little water and alkalize with 2/N NaOH. The color is rose or purple red, depending on the saccharin present. Avoid excess of reagent. 0.025 mg. of saccharin will show.

Salicylic and benzoic give only a weak yellow and do not disturb the sensitiveness of the test.

If the slightest trace of vanillin be mixed with the reagent it becomes yellow, and then in the cold, red. Held at 160° to 170° for a few minutes the mixture becomes first blood red, later almost black. In water, after the addition of a few drops of 2/N NaOH, the solution becomes dark red. The reagent acts on vanillin in the cold, on saccharin only above 100°.

Cumarin gives no color.

Other phenols give characteristic color reactions.

Traces of saccharin mixed with the following phenols and a little H_2SO_4, heated to 160° to 170°, a few drops of 2/N NaOH added, give colors as follows: Pyrocatechin, green; hydroquinon, dark red-brown with blue fluorescence; resorcin, salmon yellow, strong green-yellow fluorescence; tricresol, purple-red; phloroglucin, wine red; thymol, bright blue; vanillin and cumarin, colorless.

REID. Amer. Chem. Jour., XXI, p. 462, 1899.

0.650 gm. saccharin in test tube (18 by 160 mm.); added 10 c. c. of 71 per cent H_2SO_4 (Hefelmann's method), 132 gm. pure conc. acid, and 37 c. c. H_2O.

Test tube corked loosely and through the cork passed a glass rod which was bent into a loop at the bottom. Heated three hours with constant stirring in boiling-water bath.

Cool, dilute with water, wash into distilling flask, α 15 gm. NaOH and ammonia distilled into standard acid.

Parasulphaminbenzoic is slightly hydrolyzed by 71 per cent H_2SO_4 at 100° C.; therefore high results in saccharin mixtures. In one case where the bath went dry as high as 86 per cent of the *p*-acid was hydrolyzed.

Returned to the use of HCl as follows:

0.65 gm. saccharin into 100 c. c. fl. flask and 50 c. c. dilute acid (100 c. c. pure concentrated HCl per liter). Heat with return condenser (tube 8 mm. by 45 cm.) on sand bath to boil for 2 hours. Remove stopper and let evaporate to about 10 c. c. Dilute, wash into distilling flask, α 20 c. c. of 50 per cent NaOH solution. Distill, etc. (steam aids the distillation), into N/7 acid cochineal, using 25 c. c. Results with pure saccharin about 1 per cent higher than with H_2SO_4 on same sample; therefore hydrolysis more perfect with HCl.

Results using mixtures of saccharin and *p*-acid were 1 per cent lower than with H_2SO_4; therefore H_2SO_4 must have converted some *p*-acid.

Experiments with pure *p*-sulphobenzoic acid. Not acted on at all by HCl under the given conditions.

Boiling NaOH solution readily converts benzoic sulphimid into Na o sulphamin benzoic but does not break it down. Ten per cent NaOH does this in 1½ to 2 hours. On distilling only about 0.05 mg. NH_3 found. If to the residue in the distilling flask be added an excess of HCl and the whole boiled several hours and evaporated to dryness, found 98.5 per cent saccharin (theoretical, 99.7) some loss by spattering. This allows the estimation of saccharin in the presence of salts of NH_3 or of volatile bases or of anything which readily breaks down with 10 to 15 per cent NaOH. This was tested with a mixture of—

Am. chlor. removed with $MgCl_2$ and small amt. NaOH; recovered all.

p-nitrobenz. removed with $MgCl_2$ and excess of NaOH; recovered all.

Saccharin removed by boiling with HCl, then NaOH; recovered 99.1 per cent.

p-sulphaminbenz. removed by heating with conc. H_2SO_4; (overheated).

Analysis of pure *p*-sulphamin benzoic. Heating with conc. H_2SO_4 sufficient; then distilling as per Kjeldahl.

EFFECT OF SACCHARIN ON THE HEALTH, NUTRITION, AND GENERAL METABOLISM OF MAN.

By OTTO FOLIN.

CONTENTS.

EFFECT OF SACCHARIN ON THE HEALTH, NUTRITION, AND GENERAL METABOLISM OF MAN.

By Otto Folin.

RÉSUMÉ AND CONCLUSIONS.

In the subsequent pages of this report will be found the records obtained in connection with an extended series of metabolism experiments representing an attempt to show whether saccharin is or is not injurious to health.

Twelve young men, volunteers from among the students of Harvard Medical School, served as subjects. Seven of these were drawn by lot to take the saccharin and the other five served as controls.

For a period of about five months the saccharin men took, almost uninterruptedly, saccharin with every meal, the doses ranging from 0.05 gram at the beginning to 0.25 gram at the end, the intake amounting, therefore, to from 0.15 gram to 0.75 gram per day. As the saccharin used was approximately equal in "sweetening power" to 500 times its weight of cane sugar, the daily amounts taken correspond to from 75 grams to 375 grams of sugar per day. The amounts taken would therefore seem adequate to cover any practical use of the drug for sweetening purposes. Indeed, the character of saccharin serves as an effective barrier against its being used in very large amounts. It is used chiefly as a sweetener, and only in a very minor degree, if at all, as a preservative. Its preservative effects appear in fact to be very small indeed. Its taste, an extreme sweetness in dilute solutions, merges quickly into an intense and persistent bitterness when the concentration of the product is materially increased.

Saccharin is an acid strong enough to decompose carbonates, and it is, I believe, customary among manufacturers to neutralize it by the addition of half its weight of sodic bicarbonate, because the sodium salt is much more soluble than the uncombined substance. In these experiments the saccharin was used without previous neutralization, because it was thought that the effects of the substance on the metabolism and on the health should become more apparent with the free substance than with the more readily eliminated saccharin salt.

Considering the number of men involved, the length of the experiment, and the amounts of saccharin given, the negative character of the results obtained indicates that, so far as can be ascertained with methods at present available, saccharin in moderate doses is not injurious to the health of normal, sound adults.

PLAN OF EXPERIMENT.

At the end of this report (p. 332) will be found the detailed records of the analyses made in connection with this investigation. It is difficult to make anything like an adequate survey of so many figures. To facilitate such a survey, condensed tables representing the averages of one and two week periods will be found on pages 236–243.

These tables are divided as follows:

Preliminary period, October 20–22, represents preliminary examinations made before the taking of saccharin had begun.

Period 1 contains the averages of each two weeks between October 23 and December 18, while the men were receiving 0.05 gr m saccharin with each meal.

Period 2 began after the Christmas holidays and lasted from January 4 to February 7. During this time the subjects received 0.1 gram saccharin with each meal.

Period 3, February 8–14, is the same as period 2, so far as the saccharin intake is concerned. During that week the usual unrestricted diet was replaced by a low nitrogen diet consisting of about 400 grams of pure starch and 450 c. c. of cream.

Period 4, from February 15 to March 7, represents a return to the ordinary mixed diet. The daily saccharin intake during this period was 0.5 gram, divided into three equal doses, one with each meal.

Period 5, March 8–15, is the final one, during which all the men, the controls as well as the subjects, were taking saccharin, 0.25 gram with each meal, or 0.75 gram per day.

Saccharin is a relatively harmless drug. It is not a preservative at ordinary temperatures and has no definite pharmacological effects. For this reason and in view of the persistent tendency of normal persons to maintain nitrogen equilibrium on any liberal diet, it was not probable that the small quantities of saccharin constituting reasonable doses would produce any noticeable alteration in the nitrogen balance of well-fed healthy persons. No attempt was therefore made in this investigation to strike a balance between the intake and outgo of nitrogen. The investigation recorded in this report represents rather a detailed study of the composition of the urine of normal men taking saccharin as compared with the corresponding results obtained from normal men living in the same way

and taking the same food, but without saccharin. The physical condition of the men was closely watched throughout the experiment. The feces were analyzed for nitrogen and fat. In so far as saccharin might inhibit digestion this should be revealed by a comparison of the feces nitrogen with the urinary nitrogen of the same period, and also by a comparison of the feces fat with the feces nitrogen. Herter's fermentation test was also applied periodically to the feces. The fate of the saccharin ingested was followed. Nearly all of it (75 to 90 per cent) was eliminated with the urine.

Of the 12 men who offered themselves as subjects, seven were drawn by lot to take saccharin, and the other five served as controls. The men taking the saccharin are referred to as subjects 1, 2, 3, 4, 5, 6, and 7; the controls as subjects A, B, C, D, and E. These men took all their meals together under the supervision of an assistant. The only difference in their treatment was the administration of a solution of saccharin during each meal to each one of subjects 1 to 7. The midday meal was served in the medical school. The saccharin solutions were given with 50 to 100 c. c. of water. The men taking it were not informed and were unable to tell from the taste when the dose was increased. They took the final dose of 0.25 gram as readily as they did the initial dose of 0.05 gram and never knew the difference. This final very large dose was also taken by the controls, subjects A to E, who previously had not had any saccharin. This was done in order to determine whether the subjects proper had become habituated to the drug and therefore would be better able to stand such a large dose than would the controls. The result of this last test was negative. Neither subjectively nor from the standpoint of metabolism could any material difference be found in the reaction of the subjects to the administration of saccharin.

TABLE OF DAILY AVERAGES.

Control A.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$.	$\frac{\text{Feces fat}}{\text{Feces N}}$.
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Preliminary period:																													
Oct. 20-22	1,407	1.019	11.68	9.29	0.42	0.57	0.18	1.22	79.63	3.61	4.90	1.54	10.48	4.91	0.86	0.62	0.05	0.19	72.87	5.79	21.32	294	1.11	51	9.40	0.48	2.09	0.04	4.35
Period 1:																													
Oct. 23-Nov. 1	1,475	1.022	12.65	10.30	.43	.59	.18	1.15	81.47	3.43	4.68	1.40	8.98	6.37	.96	.68	.07	.17	73.29	7.57	18.71	295	1.02	69	21.19	1.14	5.58	.10	4.72
Nov. 2-8	1,187	1.026	13.84	11.26	.47	.61	.19	1.29	81.38	3.44	4.45	1.37	9.34	7.89	1.01	.71	.09	.20	70.29	9.26	20.29	325	1.03	92	27.93	1.55	4.35	.11	2.81
Nov. 9-22	1,300	1.023	11.92	9.81	.44	.56	.18	.93	82.26	3.59	4.70	1.52	7.76	5.84	.90	.61	.09	.20	67.88	10.11	22.30	312	.98	82	22.11	1.29	4.54	.11	3.51
Nov. 23-Dec. 6	1,345	1.023	11.75	9.67	.50	.55	.19	.83	82.25	4.39	4.71	1.67	7.07	6.27	.88	.63	.07	.19	71.07	7.54	21.38	320	.99	42	22.04	1.52	4.42	.12	2.92
Dec. 7-18	1,328	1.027	12.42	10.16	.43	.58	.19	1.05	81.76	3.50	4.67	1.59	8.47	5.61	.95	.68	.06	.21	72.03	5.92	22.19	333	1.04	23	20.12	1.23	7.34	.09	5.51
Period 2:																													
Jan. 4-17	1,356	1.026	13.88	11.66	.46	.61	.22	.95	83.88	3.34	4.43	1.69	6.78	7.39	.99	.75	.07	.17	75.49	7.29	17.21	325	1.03	116	21.50	1.28	4.51	.09	3.59
Jan. 18-31	1,264	1.026	11.91	9.78	.37	.58	.19	.98	82.07	3.23	4.86	1.69	8.26	6.27	.86	.63	.07	.17	72.41	7.74	19.73	300	1.00	85	26.32	1.61	5.01	.13	3.11
Feb. 1-7	1,116	1.028	12.17	10.14	.37	.59	.18	.89	83.29	3.02	4.86	1.48	7.34	6.25	.92	.68	.05	.18	74.27	5.98	19.75	302	.95	60	16.57	.80	3.07	.06	3.84
Period 3:																													
Feb. 8-14	1,591	1.015	5.59	3.68	.39	.55	.13	.84	64.82	7.19	10.17	2.31	15.49	4.54	.41	.21	.04	.15	51.76	11.19	37.04	206	.60	32	22.21	1.53	4.38	.27	2.86
Period 4:																													
Feb. 15-28	968	1.029	11.99	9.95	.37	.64	.20	.83	82.84	3.09	5.39	1.73	6.94	5.49	.86	.63	.05	.17	73.49	6.38	20.12	289	.94	42	15.92	.97	2.72	.07	2.94
Mar. 1-7	1,144	1.028	12.07	10.08	.33	.60	.20	.85	83.53	2.79	4.96	1.70	7.00	6.15	.87	.66	.06	.16	75.14	6.85	17.99	295	.97	43	13.93	.82	2.72	.07	3.31
Period 5:																													
Mar. 8-15	1,241	1.027	11.78	9.75	.55	.59	.18	.82	82.69	3.75	5.08	1.75	6.94	5.87	.98	.64	.06	.28	65.58	5.92	28.69	337	.94	46	22.37	1.30	4.03	.11	3.13

Control B.

Preliminary period:																													
Oct. 20–22	943	1.027	15.86	12.89	0.59	0.71	0.25	1.41	81.22	3.75	4.51	1.57	8.96	5.83	1.07	0.82	0.06	0.19	76.48	5.96	17.59	441	1.05	31	30.30	1.65	7.35	0.10	4.46
Period 1:																													
Oct. 23–Nov. 1	1,320	1.027	15.33	12.51	.61	.68	.21	1.31	81.59	3.99	4.48	1.36	8.56	7.23	1.13	.86	.07	.20	75.99	6.26	17.85	416	1.07	44	46.18	2.53	10.46	.17	4.20
Nov. 2–8	1,067	1.032	16.88	14.01	.60	.70	.21	1.24	79.67	3.56	4.18	1.42	7.81	6.76	1.21	.97	.07	.21	76.93	6.33	16.83	433	1.15	45	31.21	1.45	8.57	.08	5.90
Nov. 9–22	1,570	1.022	15.78	13.08	.66	.67	.22	1.15	82.69	4.19	4.26	1.41	7.26	7.56	1.16	.86	.07	.21	75.64	6.40	18.09	435	1.15	17	35.73	1.82	10.70	.11	5.83
Nov. 23–Dec. 6	1,456	1.027	16.58	13.69	.71	.70	.27	1.21	82.56	4.27	4.22	1.65	7.43	6.63	1.25	.92	.09	.24	75.26	7.48	18.95	444	1.31	14	34.88	1.78	10.93	.10	6.14
Dec. 7–18	1,559	1.029	17.36	14.59	.59	.71	.25	1.22	83.99	3.42	4.09	1.42	7.08	7.45	1.35	1.00	.07	.28	74.29	5.29	20.42	449	1.19	19	43.62	2.29	11.47	.13	5.09
Period 2:																													
Jan. 4–17	1,479	1.026	16.58	13.77	.56	.75	.27	1.23	83.03	3.38	4.58	1.63	7.38	8.28	1.21	.92	.06	.23	76.43	4.72	18.85	442	1.27	58	36.75	1.99	11.75	.11	5.88
Jan. 18–31	1,385	1.026	16.26	13.51	.57	.72	.26	1.19	83.06	3.51	4.48	1.59	7.36	8.05	1.19	.92	.07	.20	77.29	5.81	16.89	439	1.19	66	42.18	2.19	14.68	.13	6.69
Feb. 1–7	1,089	1.034	15.46	12.79	.49	.69	.24	1.24	82.60	3.21	4.62	1.53	8.03	6.81	1.15	.88	.07	.20	76.07	6.11	17.81	396	1.18	28	31.28	2.00	8.20	.12	4.09
Period 3:																													
Feb. 8–14	1,341	1.018	7.55	5.15	.44	.66	.13	1.16	67.17	6.01	9.16	1.79	15.71	4.34	.52	.30	.06	.16	58.26	11.59	31.58	316	.83	14	35.35	2.18	8.33	.27	3.82
Period 4:																													
Feb. 15–28	1,213	1.030	15.66	13.02	.53	.76	.25	1.09	82.99	3.45	4.93	1.59	7.04	7.38	1.15	.87	.08	.22	73.55	6.95	19.49	423	1.14	36	45.32	2.47	12.81	.15	5.22
Mar. 1–7	1,516	1.028	15.92	13.02	.56	.81	.26	1.27	81.77	3.53	5.09	1.63	7.97	9.01	1.17	.88	.08	.21	73.89	7.09	17.99	465	1.27	33	62.50	3.44	20.57	.21	5.98
Period 5:																													
Mar. 8–15	1,672	1.025	16.79	13.71	.71	.82	.27	1.29	81.64	4.19	4.92	1.58	7.66	7.58	1.32	.91	.06	.35	68.79	4.89	26.32	554	1.39	39	49.81	2.65	10.68	.27	5.18

Control C.

Preliminary period:																													
Oct. 20–22	1,410	1.022	12.77	10.38	0.52	0.68	0.20	0.98	81.42	4.05	5.38	1.59	7.55	7.54	0.96	0.73	0.05	0.19	75.57	5.56	19.22	258	0.85	34	14.22	0.91	3.19	0.07	3.50
Period 1:																													
Oct. 23–Nov. 1	1,091	1.028	12.45	10.02	.52	.67	.20	1.02	80.39	4.25	5.44	1.63	8.27	7.03	.95	.68	.08	.20	70.79	8.18	21.35	298	.86	65	25.83	1.62	6.29	.15	3.78
Nov. 2–8	829	1.032	11.67	9.02	.55	.69	.20	1.17	77.30	4.71	6.00	1.73	10.24	5.55	.85	.59	.05	.20	69.51	6.23	24.07	297	.72	108	30.50	1.91	5.64	.16	2.95
Nov. 9–22	941	1.028	12.08	9.71	.50	.62	.20	1.05	80.39	4.15	5.19	1.66	8.59	5.98	.86	.64	.05	.17	73.92	5.92	20.15	294	.86	64	27.38	1.75	5.05	.14	2.88
Nov. 23–Dec. 6	1,034	1.029	12.39	9.89	.61	.63	.21	1.04	79.95	4.99	5.13	1.73	8.37	6.61	.91	.65	.06	.20	71.47	6.33	22.20	275	.91	39	28.53	1.79	6.96	.14	3.92
Dec. 7–18	1,014	1.029	12.49	10.23	.45	.65	.21	.94	81.73	3.69	5.22	1.73	7.63	6.16	.93	.67	.07	.19	71.93	7.90	20.37	311	.88	26	29.29	1.78	6.66	.14	3.71
Period 2:																													
Jan. 4–17	1,225	1.027	11.82	9.44	.48	.65	.22	1.02	79.79	4.07	5.56	1.86	8.72	7.73	.88	.63	.06	.19	70.89	7.17	21.93	294	.91	79	30.07	1.83	7.04	.15	3.86
Jan. 18–31	1,090	1.028	11.69	9.43	.41	.63	.21	1.01	80.70	3.47	5.43	1.84	8.55	7.16	.86	.62	.06	.71	72.69	7.02	20.26	264	.88	97	26.64	1.67	5.19	.14	3.01
Feb. 1–7	891	1.034	13.30	10.97	.43	.66	21	1.03	82.49	3.24	4.98	1.54	7.74	6.42	.99	.75	.06	.18	75.45	6.55	17.98	302	.96	66	27.00	1.71	4.67	.12	2.73
Period 3:																													
Feb. 8–14	1,137	1.018	6.22	4.44	.41	.60	.12	.64	69.94	7.04	10.23	2.10	10.69	5.29	.43	.26	.05	.12	60.06	11.11	28.81	220	.62	24	19.00	1.12	3.84	.18	3.43
Period 4:																													
Feb. 15–28	970	1.031	12.21	9.95	.45	.66	.22	.92	81.31	3.75	5.45	1.87	7.61	6.37	.90	.65	.06	.19	72.38	6.68	20.94	265	.91	46	25.28	1.60	5.09	.12	3.14
Mar. 1–7	1,017	1.031	13.30	10.92	.42	.71	.22	1.04	82.06	3.16	5.32	1.69	7.75	6.44	.99	.72	.06	.18	74.85	6.19	18.95	316	1.07	26	23.57	1.47	4.10	.11	2.79
Period 5:																													
Mar. 8–15	1,075	1.029	13.86	11.15	.57	.72	.23	1.19	80.45	4.12	5.23	1.63	8.57	7.06	1.09	.73	.07	.28	67.34	7.03	25.63	339	.99	44	30.81	1.82	4.44	.17	2.81

Table of daily averages—Continued.

Control D.

Date.	Urine. Volume.	Urine. Specific gravity.	Urine nitrogen. Total (N_2).	Urine nitrogen. Urea (N_2).	Urine nitrogen. Ammonia (N_2).	Urine nitrogen. Kreatinin (N_2).	Urine nitrogen. Uric acid (N_2).	Urine nitrogen. Rest (N_2).	Per cent of total nitrogen. Urea.	Per cent of total nitrogen. Ammonia.	Per cent of total nitrogen. Kreatinin.	Per cent of total nitrogen. Uric acid.	Per cent of total nitrogen. Rest.	Chlorides.	Urine sulphur. Total (S).	Urine sulphur. Inorganic (S).	Urine sulphur. Ethereal (S).	Urine sulphur. Neutral (S).	Per cent of total sulphur. Inorganic.	Per cent of total sulphur. Ethereal.	Per cent of total sulphur. Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Feces. Nitrogen (N_2).	Feces. Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$.	$\frac{\text{Feces fat}}{\text{Feces N}}$.
Preliminary period:	*c. c.*		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20-22	1,140	1.025	13.45	11.26	0.37	0.62	0.30	0.97	83.79	2.74	4.69	1.51	7.24	6.12	0.96	0.76	0.04	0.16	79.67	5.29	16.22	221	0.87	79	13.60	0.69	2.28	0.05	3.30
Period 1:																													
Oct. 23-Nov. 1	1,350	1.021	12.09	9.84	.40	.57	.18	1.09	81.35	3.42	4.82	1.49	8.89	6.23	.89	.68	.06	.16	75.56	6.64	17.91	215	.67	59	28.36	1.82	3.90	.16	2.55
Nov. 2-8	1,393	1.022	13.34	10.85	.41	.63	.19	1.26	81.39	3.09	4.77	1.45	9.48	6.72	.95	.70	.06	.19	74.38	6.36	19.39	206	.74	100	26.00	1.61	3.30	.12	2.04
Nov. 9-22	1,216	1.023	12.15	10.06	.41	.57	.19	.92	82.78	3.41	4.73	1.60	7.46	6.40	.87	.67	.05	.16	76.35	7.20	18.76	204	.74	42	25.46	1.53	3.62	.11	2.37
Nov. 23-Dec. 6	1,351	1.023	13.02	10.81	.46	.55	.21	.98	83.09	3.56	4.22	1.64	7.48	6.73	.96	.68	.09	.19	70.34	9.32	20.38	227	.77	38	29.46	1.82	6.47	.13	3.62
Dec. 7-18	1,290	1.025	13.56	11.54	.38	.59	.21	.87	84.99	2.83	4.19	1.53	6.46	6.60	1.02	.78	.05	.19	75.93	4.65	19.42	249	.77	70	26.25	1.69	4.79	.14	2.76
Period 2:																													
Jan. 4-17	1,348	1.025	12.96	10.74	.37	.59	.21	1.04	82.79	2.89	4.62	1.59	8.10	7.82	.96	.72	.04	.19	74.62	4.05	20.32	202	.75	98	22.64	1.52	3.43	.11	2.30
Jan. 18-31	1,484	1.021	12.85	10.81	.38	.56	.21	.89	84.12	2.94	4.35	1.60	6.95	7.37	.94	.72	.04	.17	76.58	4.81	18.59	202	.77	79	22.21	1.57	3.40	.11	2.20
Feb. 1-7	1,297	1.024	13.00	10.87	.35	.55	.20	1.02	83.62	2.70	4.26	1.54	7.88	7.05	.96	.74	.04	.18	77.40	3.63	18.97	214	.76	64	26.85	1.77	4.75	.13	2.69
Period 3:																													
Feb. 8-14	1,359	1.014	5.74	4.02	.31	.51	.11	.79	69.60	5.52	9.08	1.87	13.92	3.85	.42	.24	.05	.13	57.63	11.73	30.63	151	.49	24	18.50	1.38	2.36	.24	1.71
Period 4:																													
Feb. 15-28	1,197	1.026	12.54	10.56	.37	.58	.20	.82	84.14	3.00	4.65	1.62	6.59	7.18	.93	.69	.05	.19	74.86	4.97	20.17	190	.72	38	24.00	1.60	5.20	.12	3.21
Mar. 1-7	1,171	1.026	12.60	10.49	.35	.65	.21	.91	83.22	2.79	5.11	1.71	7.16	7.27	.91	.69	.04	.18	75.99	4.66	19.34	197	.72	38	30.07	1.86	5.11	.14	2.74
Period 5:																													
Mar. 8-15	1,203	1.025	11.55	9.54	.39	.58	.21	.83	82.65	3.34	5.07	1.79	7.16	6.54	.99	.64	.04	.30	64.92	4.42	30.66	212	.85	66	31.62	1.97	3.21	.21	1.75

Control E.

Preliminary period:																													
Oct. 20-22	1,353	1.020	13.91	11.61	0.46	0.60	0.28	1.05	83.39	3.36	4.41	1.31	7.52	5.04	0.98	0.78	0.04	0.16	79.29	4.57	16.84	327	1.02	83	13.80	0.99	2.68	0.07	2.69
Period 1:																													
Oct. 23-Nov. 1	1,402	1.021	12.02	9.96	.40	.56	.15	.94	82.75	3.36	4.72	1.25	7.76	5.25	.88	.65	.06	.18	73.54	6.65	20.33	269	.91	82	24.23	1.54	5.09	.13	3.15
Nov. 2-8	1,372	1.021	11.17	8.98	.44	.57	.16	1.01	80.51	3.94	5.10	1.40	9.02	5.38	.83	.59	.05	.18	71.99	6.32	21.72	209	.83	90	22.85	1.39	2.46	.12	1.77
Nov. 9-22	1,269	1.021	11.04	9.00	.41	.55	.15	.93	81.56	3.74	5.04	1.40	8.26	4.91	.79	.56	.05	.17	72.01	6.51	21.65	250	.86	91	20.80	1.25	3.70	.11	2.97
Nov. 23-Dec. 6	1,406	1.021	11.32	9.41	.40	.52	.18	.81	82.68	3.48	4.62	1.58	7.63	6.43	.84	.58	.06	.19	69.28	7.34	23.35	314	.86	53	19.84	1.15	4.64	.09	3.97
Dec. 7-18	1,541	1.021	12.77	10.75	.39	.57	.18	.88	84.01	3.11	4.49	1.43	6.94	6.55	.97	.72	.05	.20	73.63	5.24	21.12	258	.95	39	25.16	1.51	5.38	.11	3.59
Period 2:																													
Jan. 4-17	1,466	1.022	12.19	10.15	.35	.57	.19	.94	83.22	2.85	4.63	1.56	7.72	7.08	.86	.66	.05	.15	76.28	6.06	17.66	276	.99	98	24.25	1.40	5.38	.11	3.89
Jan. 18-31	1,506	1.021	11.54	9.60	.35	.54	.18	.61	83.28	3.07	4.76	1.52	7.39	6.58	.84	.63	.06	.15	74.88	6.62	18.52	248	.92	108	26.17	1.36	8.93	.13	6.39
Feb. 1-7	1,306	1.021	11.37	9.47	.34	.51	.17	.88	83.30	3.02	4.49	1.48	7.71	6.61	.87	.64	.05	.18	73.74	5.76	20.50	246	.87	90	26.14	1.43	6.04	.12	4.21
Period 3:																													
Feb. 8-14	1,652	1.013	5.50	3.62	.37	.64	.11	.93	65.62	6.77	8.78	1.96	16.85	4.02	.42	.25	.04	.13	59.72	8.74	31.54	227	.56	16	19.43	1.34	3.58	.24	2.67
Period 4:																													
Feb. 15-28	1,190	1.025	11.41	9.54	.39	.56	.19	.73	83.49	3.47	4.97	1.64	6.41	6.25	.83	.62	.05	.16	74.65	6.26	19.09	249	.84	31	24.53	1.39	7.09	.11	5.00
Mar. 1-7	1,434	1.023	13.02	10.92	.40	.61	.22	.86	83.90	3.19	4.72	1.68	6.51	6.97	.92	.70	.06	.26	76.49	6.00	17.50	291	1.00	49	26.15	1.43	5.80	.10	4.06
Period 5:																													
Mar. 8-15	1,537	1.021	11.75	9.64	.41	.60	.19	.91	82.07	3.48	5.13	1.59	7.74	7.07	.98	.65	.05	.28	65.63	5.48	28.89	245	.94	49	25.56	1.38	4.36	.16	3.48

Subject 1.

Preliminary period:																													
Oct. 20-22	1,233	1.022	14.67	12.05	0.45	0.73	0.23	1.24	82.13	2.89	4.96	1.55	8.48	5.64	1.05	0.80	0.04	0.21	76.04	4.17	19.82	292	1.04	39	9.79	0.64	1.76	0.04	2.73
Period 1:																													
Oct. 23-Nov. 1	1,199	1.024	13.26	10.85	.47	.69	.20	1.04	81.79	3.61	5.28	1.53	7.80	5.76	.98	.71	.05	.21	71.96	5.57	22.31	307	.92	69	19.91	1.29	3.77	.10	2.86
Nov. 2-8	1,131	1.024	12.70	10.26	.45	.69	.20	1.09	80.83	3.52	5.50	1.60	8.52	5.77	.95	.67	.05	.22	71.45	5.52	22.40	255	.82	72	22.21	1.47	3.58	.11	2.43
Nov. 9-22	1,212	1.026	13.28	10.79	.47	.67	.21	1.16	81.18	3.41	5.07	1.57	8.75	5.61	.99	.70	.06	.23	71.49	5.66	22.82	278	.83	47	23.00	1.45	3.52	.10	2.44
Nov. 23-Dec. 6	1,237	1.025	13.49	10.93	.51	.69	.23	1.12	80.99	3.80	5.18	1.73	8.31	7.03	1.02	.71	.07	.24	69.87	6.33	23.94	282	.85	28	23.80	1.46	4.40	.10	3.08
Dec. 7-18	1,300	1.027	14.29	11.98	.40	.71	.23	1.11	82.78	2.80	5.02	1.62	7.78	7.12	1.10	.78	.06	.25	71.19	5.95	22.57	311	.88	28	26.04	1.66	4.80	.12	2.97
Period 2:																													
Jan. 4-17	1,293	1.027	15.61	12.98	.48	.74	.26	1.15	83.12	3.11	4.76	1.63	7.38	7.82	1.19	.88	.06	.25	74.15	4.90	20.95	307	1.00	102	18.25	1.12	3.14	.06	2.74
Jan. 18-31	1,191	1.027	14.18	11.73	.46	.70	.23	1.07	82.78	3.25	4.98	1.66	7.36	6.37	1.05	.78	.04	.23	73.99	4.15	21.85	314	.95	91	28.03	1.74	5.50	.12	3.21
Feb. 1-7	1,074	1.029	13.37	10.99	.41	.69	.22	1.07	81.98	3.09	5.18	1.66	8.08	6.32	.98	.74	.05	.19	75.61	5.36	19.02	299	.86	49	12.42	.79	3.27	.05	4.11
Period 3:																													
Feb. 8-14	1,135	1.018	6.82	4.76	.36	.65	.13	.92	69.38	5.43	9.73	1.91	13.55	3.24	.46	.27	.04	.15	59.43	7.48	33.09	201	.59	25	23.78	1.58	3.79	.26	2.39
Period 4:																													
Feb. 15-28	1,220	1.028	13.74	11.48	.42	.74	.23	.85	83.43	3.12	5.49	1.73	6.23	6.97	1.07	.74	.06	.27	69.28	5.34	25.49	290	.88	43	24.18	1.59	4.07	.11	2.55
Mar. 1-7	1,314	1.026	14.49	11.94	.40	.69	.25	1.20	82.49	2.80	4.79	1.69	8.22	6.99	1.11	.79	.05	.27	70.92	4.79	24.29	316	.98	42	21.14	1.36	4.07	.09	2.98
Period 5:																													
Mar. 8-15	1,279	1.027	14.64	12.12	.47	.74	.24	1.07	82.84	3.17	5.07	1.66	7.28	5.45	1.19	.80	.06	.33	67.77	4.89	27.35	351	1.04	48	28.69	1.75	4.30	.18	3.03

Table of daily averages—Continued.

Subject 2.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$.	$\frac{\text{Feces fat}}{\text{Feces N}}$.
Preliminary period:	*c. c.*		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20–22	1,360	1.020	13.93	11.44	0.59	0.66	0.23	1.01	82.04	4.24	4.72	1.65	7.33	6.33	0.99	0.79	0.04	0.16	79.61	3.76	16.74	260	1.07	23	15.83	1.01	1.76	0.07	1.77
Period 1:																													
Oct. 23–Nov. 1	1,208	1.024	12.65	10.24	.59	.63	.19	.99	80.82	4.67	5.09	1.53	7.88	5.84	.93	.69	.04	.19	74.25	5.09	21.02	281	.90	36	28.60	1.72	4.44	.15	2.39
Nov. 2–8	1,192	1.024	12.54	10.23	.54	.62	.19	.95	81.61	4.35	4.99	1.49	7.53	5.80	.92	.67	.05	.20	72.57	5.37	21.98	235	.88	73	27.21	1.59	3.73	.12	2.34
Nov. 9–22	1,240	1.023	11.71	9.60	.54	.59	.19	.79	82.02	4.59	5.07	1.61	6.74	5.73	.89	.64	.06	.19	71.56	7.21	21.21	246	.85	47	29.80	1.77	4.23	.15	2.41
Nov. 23–Dec. 6	1,392	1.023	11.82	9.56	.61	.60	.20	.84	80.82	5.17	5.09	1.71	7.20	7.75	.90	.63	.05	.22	69.79	5.83	24.52	285	.86	44	26.65	1.72	4.65	.13	2.71
Dec. 7–18	1,430	1.023	12.12	9.77	.50	.61	.20	1.03	80.54	4.17	5.05	1.66	8.57	6.43	.93	.67	.04	.22	72.73	4.77	23.49	226	.85	22	35.75	2.14	6.43	.17	3.11
Period 2:																													
Jan. 4–17	1,474	1.022	11.73	9.44	.56	.63	.21	.89	80.39	4.79	5.42	1.82	7.57	6.94	.92	.65	.04	.23	71.26	4.33	24.41	281	.83	93	25.21	1.61	4.76	.12	2.95
Jan. 18–31	1,354	1.022	10.79	8.72	.47	.57	.19	.84	80.72	4.33	5.34	1.76	7.84	6.08	.83	.60	.04	.19	72.00	4.67	23.33	198	.76	85	28.68	1.64	5.70	.15	3.49
Feb. 1–7	1,183	1.025	11.11	8.89	.48	.59	.18	.96	80.01	4.38	5.37	1.67	8.57	6.16	.86	.62	.04	.20	72.19	4.44	23.37	226	.86	67	33.00	2.17	7.91	.19	3.64
Period 3:																													
Feb. 8–14	1,636	1.013	5.76	3.81	.41	.53	.11	.91	64.63	7.25	9.53	1.95	16.64	4.24	.42	.23	.03	.16	54.04	7.03	38.93	178	.59	29	18.78	1.32	2.87	.22	2.17
Period 4:																													
Feb. 15–28	1,368	1.024	11.25	9.08	.50	.61	.21	.84	80.65	4.53	5.43	1.89	7.50	6.61	.89	.60	.04	.25	67.08	8.32	28.60	211	.75	48	31.85	2.03	5.81	.18	2.80
Mar. 1–7	1,330	1.025	12.72	10.39	.51	.63	.23	.95	81.72	4.02	4.98	1.84	7.42	7.02	.99	.69	.04	.26	69.65	4.59	25.76	266	.89	50	34.57	2.05	6.86	.16	3.34
Period 5:																													
Mar. 8–15	1,325	1.024	12.12	9.76	.58	.61	.21	.96	80.53	4.79	5.00	1.75	7.92	6.32	1.00	.65	.04	.31	65.21	3.36	31.45	261	.82	59	30.18	1.81	5.41	.20	3.36

Subject 3.

Preliminary period:																													
Oct. 20-22	1,147	1.025	14.67	11.78	0.62	0.74	0.26	1.26	80.37	4.22	5.07	1.77	8.63	6.00	1.02	0.80	0.06	0.16	78.49	6.26	15.60	314	0.99	60	15.06	0.81	2.85	0.18	3.52
Period 1:																													
Oct. 23-Nov. 1	1,231	1.025	13.00	10.47	.52	.70	.20	1.11	80.46	4.01	5.39	1.56	8.55	5.71	.95	.69	.07	.19	71.54	7.47	23.09	277	.92	71	23.94	1.34	4.72	.11	3.53
Nov. 2-8	1,296	1.025	14.91	12.03	.57	.70	.21	1.38	80.63	3.89	4.75	1.44	9.24	6.72	1.07	.77	.08	.21	72.35	7.99	19.59	294	.95	138	21.28	1.17	3.37	.07	2.87
Nov. 9-22	1,210	1.026	14.51	11.89	.58	.68	.22	1.14	81.88	4.04	4.67	1.52	7.83	6.86	1.09	.76	.08	.24	70.53	7.63	22.48	317	.93	111	23.73	1.25	4.35	.08	3.46
Nov. 23-Dec. 6	1,331	1.027	15.08	12.23	.62	.69	.26	1.28	81.09	4.11	4.57	1.69	8.51	7.44	1.10	.79	.09	.22	72.04	7.92	20.03	356	1.01	98	25.61	1.47	4.84	.09	3.29
Dec. 7-18	1,591	1.025	14.79	12.18	.54	.69	.24	1.11	82.35	3.70	4.69	1.66	7.58	6.59	1.19	.86	.08	.25	71.75	6.79	21.44	311	.91	56	23.33	1.35	4.55	.09	3.33
Period 2:																													
Jan. 4-17	1,536	1.022	14.54	11.81	.57	.78	.26	1.13	81.24	4.00	5.49	1.81	7.46	8.53	1.11	.77	.07	.27	69.53	6.23	24.23	324	1.03	145	19.60	1.24	4.65	.08	3.53
Jan. 18-31	1,500	1.025	14.57	11.93	.49	.68	.24	1.23	81.91	3.42	4.64	1.78	8.39	8.11	1.08	.78	.06	.24	72.15	6.10	21.75	284	1.02	174	20.29	1.12	3.71	.07	3.33
Feb. 1-7	1,484	1.027	16.38	13.66	.51	.73	.25	1.22	83.43	3.14	4.45	1.54	7.44	8.71	1.17	.87	.06	.23	74.75	5.33	19.91	307	1.05	126	10.93	.60	2.24	.03	3.51
Period 3:																													
Feb. 8-14	1,689	1.017	7.77	5.53	.43	.65	.14	1.03	70.72	5.56	8.42	1.79	13.51	6.32	.57	.33	.05	.19	57.99	9.03	33.05	223	.74	55	20.35	1.26	3.47	.16	2.74
Period 4:																													
Feb. 15-28	1,470	1.025	15.39	12.57	.57	.78	.26	1.20	81.28	3.86	5.22	1.79	7.89	7.55	1.19	.82	.06	.31	69.03	5.09	25.87	271	1.03	143	23.70	1.43	6.24	.09	4.36

Subject 4.

Preliminary period:																													
Oct. 20-22	1,263	1.024	14.58	11.83	0.42	0.76	0.26	1.31	81.09	2.91	5.29	1.82	8.88	6.12	1.04	0.80	0.08	0.15	77.46	8.59	14.08	302	1.09	60	14.44	0.87	2.72	0.07	3.13
Period 1:																													
Oct. 23-Nov. 1	1,581	1.021	13.99	11.25	.52	.75	.23	1.23	80.35	3.74	5.37	1.68	8.84	6.89	1.02	.74	.09	.17	72.49	10.46	17.14	329	1.01	44	21.86	1.43	4.24	.11	2.99
Nov. 2-8	1,512	1.024	13.69	10.85	.50	.75	.23	1.32	79.55	3.62	5.56	1.65	9.61	6.77	1.06	.73	.11	.22	68.54	9.90	21.57	301	.96	87	31.85	2.02	5.28	.14	2.61
Nov. 9-22	1,364	1.024	13.54	10.99	.47	.71	.22	1.14	81.12	3.47	5.26	1.65	8.56	6.86	1.02	.71	.10	.21	69.38	10.01	20.61	293	.98	68	23.27	1.32	4.46	.09	3.32
Nov. 23-Dec. 6	1,308	1.025	12.10	9.73	.42	.65	.25	1.03	80.32	3.51	5.41	2.10	8.65	7.23	.91	.62	.10	.18	68.54	11.69	19.65	305	.87	41	26.50	1.51	5.47	.11	3.52
Dec. 7-18	1,626	1.025	14.53	11.95	.40	.69	.25	1.24	82.34	2.79	4.77	1.76	8.34	7.46	1.14	.81	.10	.21	71.74	9.17	19.09	346	1.05	51	47.25	2.66	11.62	.18	4.39
Period 2:																													
Jan. 4-17	1,986	1.021	15.41	12.76	.47	.80	.28	1.11	82.75	3.03	5.21	1.80	7.20	9.07	1.19	.83	.10	.26	69.81	8.34	21.85	343	1.13	116	22.92	1.37	4.57	.08	3.52
Jan. 18-31	1,747	1.021	14.42	11.74	.40	.71	.24	1.28	81.64	2.81	5.00	1.67	8.88	7.68	1.08	.77	.07	.24	71.68	6.67	21.65	313	1.01	113	30.71	1.83	4.54	.12	2.47
Feb. 1-7	1,646	1.025	15.85	13.16	.46	.69	.26	1.27	83.04	2.89	4.39	1.66	8.02	7.80	1.16	.88	.09	.21	73.71	8.27	18.02	397	1.17	136	23.07	1.36	2.81	.08	2.09
Period 3:																													
Feb. 8-14	1,960	1.013	6.47	4.37	.38	.68	.14	.90	66.62	5.93	11.09	2.16	14.21	4.77	.54	.27	.07	.18	49.69	13.04	37.26	235	.68	44	14.43	.88	2.41	.13	2.75
Period 4:																													
Feb. 15-28	1,557	1.023	14.08	11.54	.42	.75	.26	1.11	81.76	3.01	5.37	1.89	7.97	7.34	1.12	.76	.09	.27	67.32	8.15	24.53	305	.96	67	25.92	1.75	4.69	.12	3.01
Mar. 1-7	1,667	1.021	15.69	12.75	.44	.79	.28	1.44	81.26	2.78	5.06	1.79	9.10	7.88	1.18	.80	.10	.27	68.58	8.49	22.94	386	1.17	28	38.71	2.30	5.56	.14	2.41
Period 5:																													
Mar. 8-15	1,746	1.023	15.53	12.90	.49	.81	.27	1.05	83.05	3.15	5.29	1.72	6.80	7.64	1.25	.85	.09	.30	67.82	7.61	24.56	386	1.13	144	18.62	1.15	1.26	.20	2.19

Table of daily averages—Continued.

Subject 5.

Date.	Urine. Volume.	Urine. Specific gravity.	Urine nitrogen. Total (N_2).	Urine nitrogen. Urea (N_2).	Urine nitrogen. Ammonia (N_2).	Urine nitrogen. Kreatinin (N_2).	Urine nitrogen. Uric acid (N_2).	Urine nitrogen. Rest (N_2).	Per cent of total nitrogen. Urea.	Per cent of total nitrogen. Ammonia.	Per cent of total nitrogen. Kreatinin.	Per cent of total nitrogen. Uric acid.	Per cent of total nitrogen. Rest.	Chlorides.	Urine sulphur. Total (S).	Urine sulphur. Inorganic (S).	Urine sulphur. Ethereal (S).	Urine sulphur. Neutral (S).	Per cent of total sulphur. Inorganic.	Per cent of total sulphur. Ethereal.	Per cent of total sulphur. Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's = 100).	Feces. Dry weight.	Feces. Nitrogen (N_2).	Feces. Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$.	$\frac{\text{Feces fat}}{\text{Feces N}}$.
Preliminary period:	*c. c.*		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20–22	1,693	1.020	12.13	9.77	0.50	0.84	0.23	0.97	80.44	4.14	5.48	1.87	8.06	6.67	0.88	0.61	0.10	0.16	69.59	11.77	18.64	242	1.02	109	15.13	1.00	2.49	0.08	2.49
Period 1.																													
Oct. 23–Nov. 1	1,378	1.022	11.46	9.03	.55	.63	.19	1.05	78.73	4.84	5.54	1.70	9.18	6.37	.85	.61	.06	.18	71.52	6.99	21.64	209	.79	86	22.76	1.54	3.67	.14	2.40
Nov. 2–8	1,331	1.021	10.71	8.34	.44	.60	.20	1.13	77.90	4.13	5.64	1.85	10.46	6.05	.82	.53	.06	.26	64.99	7.46	27.52	204	.76	78	23.85	1.59	3.21	.15	2.02
Nov. 9–22	1,384	1.021	11.66	9.32	.49	.60	.21	1.03	79.93	4.22	5.17	1.85	8.82	5.72	.88	.59	.06	.24	66.36	6.63	26.76	232	.83	113	23.78	1.62	3.49	.13	2.16
Nov. 23–Dec. 6	1,550	1.021	12.28	9.93	.53	.60	.23	.98	80.93	4.35	4.92	1.90	7.91	6.88	.91	.61	.08	.22	67.59	8.54	24.03	275	.84	86	21.96	1.42	3.48	.11	2.48
Dec. 7–18	1,550	1.023	13.22	10.87	.51	.64	.24	.95	82.16	3.89	5.17	1.84	7.21	6.48	1.02	.71	.07	.24	69.77	7.06	23.17	289	.94	77	27.29	1.75	4.71	.13	2.80
Period 2:																													
Jan. 4–17	1,643	1.021	12.04	9.79	.45	.62	.25	.94	81.19	3.78	5.26	1.93	7.84	7.32	.93	.63	.06	.23	67.79	6.69	25.51	241	.86	128	18.43	1.07	3.42	.08	3.23
Jan. 18–31	1,395	1.023	12.78	10.45	.46	.61	.24	1.01	81.79	3.57	4.86	1.86	7.91	6.06	.96	.67	.06	.23	69.25	6.09	24.52	244	.86	114	21.87	1.24	4.61	.10	3.61
Feb. 1–7	1,216	1.026	12.18	9.94	.45	.64	.23	.92	81.52	3.73	5.23	1.94	7.58	6.77	.94	.66	.07	.21	70.41	7.76	21.83	265	.88	126	18.00	1.06	2.92	.08	2.74
Period 3:																													
Feb. 8–14	1,703	1.013	6.29	4.32	.38	.56	.14	.89	67.39	6.12	9.13	2.35	14.99	4.32	.47	.24	.04	.19	51.70	8.76	39.53	187	.64	37	22.14	1.59	2.95	.25	1.86
Period 4:																													
Feb. 15–28	1,251	1.024	11.57	9.46	.43	.62	.24	.82	81.61	3.73	5.45	2.10	7.09	6.36	.94	.59	.07	.28	63.14	7.18	29.68	223	.81	77	17.89	1.10	1.94	.09	1.72
Mar. 1–7	1,441	1.023	12.56	10.31	.44	.67	.27	.85	82.32	3.48	5.31	2.13	6.72	7.25	.96	.64	.06	.25	67.04	6.55	24.41	250	.89	74	18.78	1.10	2.75	.08	2.50
Period 5:																													
Mar. 8–15	1,476	1.024	12.52	10.19	.49	.67	.25	.92	81.39	3.97	5.35	1.98	7.30	6.63	1.04	.65	.06	.33	62.62	5.38	32.00	279	.93	68	31.43	2.41	5.85	.31	3.14

Subject 6.

Preliminary period:																													
Oct. 20–22	1,283	1.022	13.62	11.26	0.45	0.62	0.22	1.07	82.68	3.27	4.55	1.59	7.89	6.08	1.06	0.78	0.08	0.19	73.53	7.63	18.49	369	0.99	59	14.16	0.70	4.71	0.05	6.66
Period 1:																													
Oct. 23–Nov. 1	1,510	1.021	13.12	10.68	.55	.56	.19	1.14	81.31	4.28	4.28	1.46	8.64	5.79	.98	.73	.08	.17	74.13	8.51	17.54	330	.96	45	21.10	1.03	6.03	.08	6.08
Nov. 2–8	1,118	1.024	11.97	9.74	.37	.58	.19	1.09	81.27	3.11	4.87	1.58	9.14	4.88	.89	.58	.07	.21	64.76	11.99	23.38	282	.85	71	15.64	.73	3.00	.06	4.07
Nov. 9–22	1,275	1.023	11.59	9.48	.41	.54	.19	.98	81.68	3.53	4.71	1.67	8.39	6.08	.87	.56	.11	.18	66.14	13.05	20.98	317	.85	69	19.15	.86	3.92	.07	4.60
Nov. 23–Dec. 6	1,365	1.024	13.41	11.10	.42	.56	.23	1.10	82.74	3.13	4.18	1.68	8.25	6.86	1.02	.69	.08	.26	66.85	7.63	25.65	359	.96	43	26.00	1.25	5.32	.09	4.28
Dec. 7–18	1,508	1.024	13.88	11.62	.36	.61	.23	1.03	83.69	2.71	4.43	1.69	7.49	6.84	1.05	.76	.08	.21	72.48	7.58	19.95	382	1.02	43	19.54	1.12	3.22	.07	2.67
Period 2:																													
Jan. 4–17	1,546	1.023	13.29	11.07	.38	.59	.23	1.02	83.25	2.86	4.42	1.71	7.75	7.98	1.03	.73	.07	.23	70.70	7.16	22.14	363	1.05	93	24.00	1.22	4.82	.08	4.05
Jan. 18–31	1,415	1.024	13.19	11.11	.35	.58	.22	.93	84.20	2.68	4.37	1.69	7.06	7.28	.99	.72	.07	.20	73.13	6.64	20.62	328	1.01	63	22.14	1.17	4.72	.08	4.03
Feb. 1–7	1,393	1.025	12.98	10.78	.37	.60	.23	1.00	83.04	2.85	4.64	1.75	7.73	7.85	.99	.71	.09	.19	71.15	8.99	19.85	341	.95	54	30.07	1.52	1.85	.11	1.22
Period 3:																													
Feb. 8–14	1,553	1.014	6.43	4.77	.32	.50	.14	.69	73.48	5.17	8.18	2.20	10.97	4.00	.51	.27	.05	.19	53.27	10.09	36.64	222	.67	28	18.28	1.11	4.25	.17	3.81
Period 4:																													
Feb. 15–28	1,471	1.023	12.99	10.87	.37	.60	.23	.92	83.69	2.84	4.64	1.75	7.08	7.16	1.00	.67	.08	.25	66.84	7.79	25.37	319	.92	36	16.03	.86	2.52	.06	3.08
Mar. 1–7	1,263	1.025	12.44	10.45	.36	.61	.23	.79	82.02	2.92	5.01	1.81	6.26	6.89	.96	.67	.07	.22	68.82	7.21	23.77	329	.94	44	26.43	1.40	5.41	.11	3.85
Period 5:																													
Mar. 8–15	1,398	1.024	11.98	9.78	.36	.60	.21	1.02	81.67	3.03	5.01	1.75	8.55	7.06	.98	.65	.07	.27	65.76	6.87	27.37	336	.92	39	20.12	1.09	1.85	.21	2.96

Subject 7.

Preliminary period:																													
Oct. 20–22	1,260	1.021	14.34	11.47	0.58	0.86	0.26	1.17	80.03	4.02	6.00	1.81	8.14	4.50	1.06	0.75	0.09	0.22	70.44	8.51	20.74	255	0.88	47	10.97	0.56	2.46	0.03	4.35
Period 1:																													
Oct. 23–Nov. 1	1,178	1.027	17.27	13.94	.70	.77	.31	1.66	80.65	3.88	4.53	1.87	8.98	4.28	1.19	.81	.09	.29	67.94	7.36	24.59	155	.56	81	19.96	1.05	3.90	.06	3.91
Nov. 2–8	1,301	1.021	13.14	10.20	.53	.65	.41	1.34	77.44	4.01	5.02	3.17	10.36	4.13	.95	.63	.09	.24	65.98	9.98	24.39	324	.87	104	15.35	.89	3.76	.07	4.20
Nov. 9–22	1,222	1.020	9.80	7.56	.44	.60	.25	.96	77.11	4.39	6.26	2.54	9.68	5.26	.69	.46	08	.16	65.42	11.61	22.05	250	.92	76	24.69	1.44	5.31	.16	3.74
Nov. 23–Dec. 6	1,263	1.021	9.93	7.91	.40	.55	.18	.88	79.49	4.15	5.59	1.84	8.92	5.03	.76	.49	.07	.20	64.06	9.50	26.59	220	.77	50	22.04	1.22	4.82	23.98	3.94
Dec. 7–18	1,411	1.022	11.85	9.64	.43	.62	.20	.95	81.40	3.64	5.25	1.69	8.01	5.42	.89	.59	.09	.19	67.48	10.59	21.93	296	.88	30	25.00	1.57	5.52	.13	3.49

GAIN AND LOSS IN BODY WEIGHT.

In the following table are recorded the body weights of the subjects and the controls from the beginning of the experiment (Oct. 16) to the end (Mar. 14). From these tables it will be seen that all the men except two gained in weight. Of these two, one (7) took saccharin, the other (E) did not. The gain in weight is not less pronounced among the subjects than among the controls.

The fact that the saccharin men gained in weight during the experiment does not prove the harmlessness of the drug. It is rather evidence of the fact that the food furnished was excellent and abundant. It indicates, however, clearly enough that the appetites of the men taking saccharin remained unimpaired.

Record of body weights.

CONTROLS.

Date.	A		B		C		D		E	
1908.	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*
Oct. 16	138	8	174	8	151	14	129	0	133	6
Nov. 15	142	13	175	0	152	4	131	3	130	0
Nov. 29	143	12	177	3	152	6	132	11	130	0
Dec. 13	145	4	176	8	156	10	131	10	128	0
1909.										
Jan. 10	144	13	178	8	155	4	130	14	......	
Jan. 24	147	10	178	10	158	12	132	13	129	12
Feb. 7	146	10	179	7	154	9	131	5	128	10
Feb. 14	147	12	175	5	155	3	130	12	128	8
Feb. 28	148	0	180	7	156	0	130	6	129	7
Mar. 14	147	14	185	4	158	5	131	14	132	2
Total gain	9	6	10	12	6	7	2	14	......	
Total loss	......		......		......		......		1	4

SACCHARIN MEN.

Date.	Subject 1.		Subject 2.		Subject 3.		Subject 4.		Subject 5.		Subject 6.		Subject 7.	
1908.	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*	*Lbs.*	*oz.*
Oct. 16	152	14	135	4	154	1	186	0	142	2	140	4	192	5
Nov. 15	150	8	133	0	152	11	185	9	144	8	139	3	186	12
Nov. 29	151	14	135	12	154	1	191	4	146	4	144	3	186	12
Dec. 13	153	9	134	8	155	0	193	5	148	13	145	1	187	0
1909.														
Jan. 10	155	9	135	14	156	3	196	12	146	14	148	7	......	
Jan. 24	156	2	137	5	157	4	198	12	148	11	149	0	......	
Feb. 7	154	8	136	11	158	13	198	2	144	9	149	6	......	
Feb. 14	150	8	136	11	157	1	196	9	144	0	145	8	......	
Feb. 28	153	4	137	14	......		199	12	145	14	149	15	......	
Mar. 14	155	0	138	13	......		201	6	145	4	148	0	......	
Total gain	2	2	3	9	3	0	15	6	3	2	7	12	......	
Total loss	......		......		......		......		......		......		5	5

DETAILED ACCOUNT OF THE PHYSICAL CONDITION OF THE SUBJECTS.

On the following pages will be found the results of the physical examination of the men. With the exception of a slight attack of tonsilitis and jaundice in one of the subjects (7) at the beginning of the experiments, all remained perfectly well. No. 7 was on the whole

less satisfactory as a subject than the others, because he found it irksome to be on time for the meals. His resignation from the squad was accepted at the end of about two months. One other resignation, that of subject 3, was accepted about a month before the close of the experiment. He also found the regularity called for rather tiresome. In neither of these two withdrawals, so far as could be learned, did the aversion to taking saccharin figure materially.

Control A (F. O. R.).

Oct. 18, 1908.

Age: 25 years.

Past history: Negative.

Examination: Well developed and nourished. Height, 5 ft. 8¼ in. Weight, 138 lbs. 8 oz. Temperature 98.4, pulse 80, respiration 16. Hemoglobin 100. Chest measurements—full expiration 80.5 cm., full inspiration 89.6 cm. Lung capacity 285 cu. in. Mouth negative. Few small glands in neck and groins. Reflexes normal. Lungs negative. Heart apex fifth space, 6.5 cm. from median line, left border 6.8 cm. from median line, right border 1.5 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from sixth rib to 3 cm. above costal margin; edge of liver indefinitely palpable.

Nov. 15, 1908. Feels perfectly well; bowels regular. Weight 142 lbs. 13 oz.

Nov. 29, 1908. Feels perfectly well; bowels regular. Weight 143 lbs. 12 oz.

Dec. 16, 1908. Feels perfectly well; bowels regular. Weight 145 lbs. 4 oz.

Jan. 10, 1909. Feels perfectly well; bowels regular. Weight 144 lbs. 13 oz.

Jan. 24, 1909. Had a slight cold in the head this week; bowels regular. Weight 147 lbs. 10 oz.

Feb. 7, 1909. Feels perfectly well; bowels regular. Weight 146 lbs. 10 oz.

Feb. 15, 1909. Feels perfectly well; bowels regular. Weight 147 lbs. 12 oz. Urine shows slight trace of sugar on last day of starch diet.

Feb. 28, 1909. Feels perfectly well; bowels regular. Weight 148 lbs.

Mar. 14, 1909. Feels perfectly well; bowels regular. Weight 147 lbs. 14 oz.

Mar. 15, 1909. Complete physical examination shows no change from that made Oct. 16, 1908. Temperature 98.6, pulse 75, respiration 17.

URINE.

Oct. 18, 1908. Color normal, acid reaction, specific gravity 1.015, albumen absent, sugar absent. Sediment—rare small round and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—small round and squamous cell, rare spermatozoa, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare leucocyte and large round cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate and rare uric acid crystals.

Feb. 14, 1909. Last day of starch diet slight trace of sugar in urine.

Feb. 23, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate and acid sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 18, 1908. Hemoglobin 100.

Feb. 5, 1909. Hemoglobin 100, whites 9,500, reds 4,900,000.

Feb. 19, 1909. Hemoglobin 100, whites 10,000, reds 4,700,000.

Mar. 15, 1909. Hemoglobin 100, whites 8,000, reds 5,000,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. No disturbance in health throughout this period except slight cold in the head during the week of Jan. 14, when urine showed slight trace of sugar on last day of starch diet.

Total gain in weight 9 lbs. 6 oz.

Control B (J. S. R.).

Oct. 17, 1908.

Age: 23 years.

Past history: Negative.

Examination: Well developed and nourished. Height, 5 ft. 9½ in. Weight, 174 lbs. 8 oz. Temperature 98.6, pulse 88, respiration 16. Hemoglobin 100. Chest measurements—full expiration 87 cm., full inspiration 98.4 cm. Lung capacity 240 cu. in. Mouth negative. No palpable glands. Reflexes normal. Lungs negative. Heart apex fifth space, 9 cm. from median line, left border 9.2 cm. from median line, right border 2 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from sixth rib to costal margin; edge of liver not palpable.

Nov. 15, 1908. Feels perfectly well; bowels regular. Weight 175 lbs.

Nov. 29, 1908. Feels perfectly well; bowels regular. Weight 177 lbs. 3 oz.

Dec. 13, 1908. Feels perfectly well; bowels regular. Weight 176 lbs. 8 oz.

Jan. 10, 1909. Feels perfectly well; bowels regular. Weight 178 lbs. 8 oz.

Jan. 24, 1909. Feels perfectly well; bowels regular. Weight 178 lbs. 10 oz.

Feb. 7, 1909. Feels perfectly well; bowels regular. Weight 179 lbs. 7 oz.

Feb. 14, 1909. Last day of starch diet. Feels perfectly well; bowels regular. Urine shows slight trace of sugar. Weight 175 lbs. 5 oz.

Feb. 28, 1909. Feels perfectly well; bowels regular. Weight 180 lbs. 7 oz.

Mar. 14, 1909. Feels perfectly well; bowels regular. Weight 185 lbs. 4 oz.

Mar. 17, 1909. Complete physical examination shows no change from that made October 17, 1908. Temperature 98.6, pulse 85, respiration 16.

URINE.

Oct. 17, 1908. Color normal, acid reaction, specific gravity 1.022, albumen absent, sugar absent. Sediment—rare leucocyte and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare small round, neck of bladder and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare leucocyte and small caudate cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare leucocyte and neck of bladder cell, no calcium oxalate, and rare uric acid crystals.

Feb. 14, 1909. Last day of starch diet urine shows slight trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate and acid sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small and large round cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 17, 1908. Hemoglobin 100.

Jan. 24, 1909. Hemoglobin 100, whites 12,000, reds 5,200,000.

Feb. 10, 1909. Hemoglobin 100, whites 8,000, reds 5,000,000.

Mar. 14, 1909. Hemoglobin 100, whites 7,000, reds 5,400,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. No disturbance in health throughout this period except that urine showed slight trace of sugar on last day of starch diet.

Total gain in weight 10 lbs. 12 oz.

Control C (R. C. M.).

Oct. 20, 1908.

Age: 26 years.

Past history: Negative.

Examination: Well developed and nourished. Height 5 ft. 10 in. Weight 151 lbs. 12 oz. Temperature 98.6, pulse 80, respiration 15. Hemoglobin 100. Chest measurements—full expiration 84.5 cm., full inspiration 94 cm. Lung capacity 290 cu. in. Mouth negative. No palpable glands. Reflexes normal. Lungs negative. Heart apex fifth space, 8 cm. from median line, left border 8.5 cm. from median line, right border 1.5 cm. from median line. Abdominal examination negative. Liver dullness from fifth rib to 2 cm. above costal margin; edge of liver not palpable.

Nov. 6, 1908. Diarrhea for past two days, 8 movements yesterday.

Nov. 7, 1908. Bowels normal.

Nov. 15, 1908. Feels perfectly well; bowels regular. Weight 152 lbs. 4 oz.

Nov. 29, 1908. Feels perfectly well; bowels regular. Weight 152 lbs. 6 oz.

Dec. 15, 1908. Feels perfectly well; bowels regular. Weight 156 lbs. 10 oz.

Jan. 10, 1909. Attack of diarrhea from Dec. 31 to Jan. 1, inclusive; bowels regular since. Weight 155 lbs. 4 oz.

Jan. 24, 1909. Feels perfectly well; bowels regular. Weight 158 lbs. 12 oz.

Feb. 7, 1909. Feels perfectly well; bowels regular. Weight 154 lbs. 9 oz.

Feb. 14, 1909. Began starch diet Feb. 8, vomited first day after noon meal. Attack of diarrhea Feb. 9. Constipated Feb. 12. Slight nausea off and on while on starch diet. Urine showed slight trace of sugar. Weight 155 lbs. 3 oz.

Feb. 28, 1909. Feels perfectly well; bowels regular. Weight 156 lbs.

Mar. 15, 1909. Feels perfectly well; bowels regular. Weight 158 lbs. 5 oz. Complete physical examination shows no change from that made Oct. 20, 1908. Temperature 98.6, pulse 82, respiration 16.

URINE.

Oct. 20, 1908. Color normal, acid reaction, specific gravity 1.023, albumen absent, sugar absent. Sediment—rare small round and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare small round and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare small round, neck of bladder and squamous cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate crystals.

Feb. 14, 1909. Last day of starch diet urine shows slight trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare leucocyte and squamous cell, many calcium oxalate and acid sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small and large round cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 20, 1908. Hemoglobin 100.

Feb. 9, 1909. Hemoglobin 100, whites 7,000, reds 6,100,000.

Feb. 27, 1909. Hemoglobin 100, whites 8,500, reds 5,900,000.

Mar. 13, 1909. Hemoglobin 100, whites 10,000, reds 6,000,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. No disturbance in health throughout this period except three attacks of diarrhea, and urine showed slight trace of sugar on last day of starch diet.

Total gain in weight 6 lbs. 9 oz.

Control D (C. J. F.).

Oct. 14, 1908.

Age: 23 years.

Past history: Negative.

Examination: Well developed and nourished. Height 5 ft. 8 in. Weight 129 lbs. Temperature 98.6, pulse 84, respiration 17. Hemoglobin 100. Chest measurements—full expiration 74 cm., full inspiration 81.8 cm. Lung capacity 225 cu. in. Mouth negative. A few small glands in neck and groins. Reflexes normal. Lungs negative. Heart apex fifth space, 7 cm. from median line, left border 7.3 cm. from median line, right border 1.4 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from sixth rib to costal margin; edge of liver not palpable.

Nov. 15, 1908. Slight attack of diarrhea Nov. 10 and 11, otherwise well. Weight 131 lbs. 3 oz.

Nov. 28, 1908. Feels perfectly well; bowels regular. Weight 132 lbs. 11 oz.

Dec. 19, 1908. Feels perfectly well; bowels regular. Weight 131 lbs. 10 oz.

Jan. 9, 1909. Ran for a street car on Jan. 5; fainted as soon as got aboard. Stomach empty. Has fainted occasionally before. Bowels regular. Weight 130 lbs. 14 oz.

Jan. 21, 1909. Feels perfectly well; bowels regular. Weight 132 lbs. 13 oz.

Feb. 7, 1909. Feels perfectly well; bowels regular. Weight 131 lbs. 5 oz.

Feb. 14, 1909. Felt somewhat tired on first day of starch diet, perfectly well since. Urine showed no trace of sugar at end of period. Weight 130 lbs. 12 oz.

Feb. 26, 1909. Perfectly well; bowels regular. Weight 130 lbs. 6 oz.

Mar. 13, 1909. Perfectly well; bowels regular. Weight 131 lbs. 12 oz. Complete physical examination shows no change from that made Oct. 14, 1908. Temperature 98.6, pulse 90, respiration 16.

URINE.

Oct. 14, 1908. Color normal, acid reaction, specific gravity 1.022, albumen absent, sugar absent, occasional squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare small and large round and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate crystals.

Feb. 14, 1909. Last day of starch diet urine shows no trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare leucocyte and squamous cell, many calcium oxalate and acid sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small round cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 14, 1908. Hemoglobin 100.

Jan. 9, 1909. Hemoglobin 100, whites 8,000, reds 4,800,000.

Feb. 8, 1909. Hemoglobin 100, whites 10,000, reds 5,000,000.

Mar. 9, 1909. Hemoglobin 100, whites 9,000, reds 4,800,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. No disturbance in health throughout this period except (1) slight attack of diarrhea Nov. 15, (2) fainted after exertion Feb. 9.

Total gain in weight 2 lbs. 12 oz.

Control E (C. J. V.).

Oct. 14, 1908.

Age: 24 years.

Past history: Negative. Nervous temperament.

Examination: Well developed and nourished. Height 5 ft. 10¼ in. Weight 133 lbs. 6 oz. Temperature 99, pulse 87, respiration 18. Hemoglobin 100. Chest measurements—full expiration 75 cm., full inspiration 82.5 cm. Lung capacity 240 cu. in. Mouth negative. Few small glands in neck and groins. Reflexes normal. Lungs slight, cardio-respiratory murmur in left axilla. Heart apex fifth space, 8 cm. from median line, left border 8.5 cm. from median line, right border 1 cm. from median line. Rhythm normal, sounds faint, doubtful systolic murmur heard at apex of heart. Abdominal examination negative. Liver dullness from sixth rib to costal margin; edge of liver not palpable.

Nov. 15, 1908. Feels perfectly well; bowels regular. Weight 130 lbs.

Nov. 28, 1908. Feels perfectly well; bowels regular. Weight 130 lbs.

Dec. 19, 1908. Feels perfectly well; bowels regular. Weight 128 lbs.

Jan. 21, 1909. Feels perfectly well; bowels regular. Weight 129 lbs. 12 oz.

Feb. 7, 1909. Feels perfectly well; bowels regular. Weight 128 lbs. 10 oz.

Feb. 14, 1909. Has felt tired ever since on starch diet. Urine shows slight trace of sugar.

Feb. 26, 1909. Feels perfectly well; bowels regular. Weight 129 lbs. 7 oz.

Mar. 15, 1909. Feels perfectly well; bowels regular. Weight 132 lbs. 2 oz. Complete physical examination shows no change from that made Oct. 14, 1908. Temperature 98.6, pulse 85, respiration 17.

URINE.

Oct. 14, 1908. Color slightly high, acid reaction, specific gravity 1.024, albumen absent, sugar absent. Sediment—few small round and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare leucocyte and squamous cell, many ammonium urate and triple phosphate crystals.

Feb. 14, 1909. Last day of starch diet urine shows slight trace of sugar.

Feb. 23, 1909. Occasional small round cell, many calcium oxalate and acid sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small and large round cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 14, 1908. Hemoglobin 100.

Feb. 8, 1909. Hemoglobin 100, whites 6,200, reds 5,300,000.

Mar. 9, 1909. Hemoglobin 100, whites 8,000, reds 5,000,000.

Mar. 14, 1909. Hemoglobin 100, whites 7,000, reds, 5,000,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. No disturbance in health throughout this period except (1) complained of feeling tired while on starch diet, (2) urine showed slight trace of sugar.

Total loss in weight 1 lb. 4 oz.

Subject 1 (H. H. C.).

Oct. 16, 1908.

Age: 26 years.

Past history: Negative.

Examination: Well developed and nourished. Height 5 ft. 8 in., weight 152 lbs. 12 oz. Temperature 99, pulse 100, respiration 16. Hemoglobin 100. Chest measurements—full expiration 83 cm., full inspiration 90 cm. Lung capacity 265 cu. in. Mouth negative. No palpable glands. Reflexes normal. Lungs negative. Heart apex fifth space 9 cm. from the median line, left border 10 cm. from median line, right border 1 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from sixth rib to 2 cm. above costal margin; edge of liver is indefinitely palpable.

Nov. 15, 1908. Feels perfectly well; bowels regular. Weight 150 lbs. 8 oz.

Nov. 29, 1908. Slightly constipated during past week. Weight 151 lbs. 14 oz.

Dec. 13, 1908. Still slightly constipated, otherwise perfectly well. Weight 153 lbs. 9 oz.

Jan. 10, 1909. Stopped saccharin Dec. 19. Bowels more regular since. Began saccharin again Jan. 4. Bowels slightly constipated since renewing saccharin. Weight 155 lbs. 9 oz.

Jan. 24, 1909. Had a coryza for last four days, did not interfere with work. Feeling quite well at present. Bowels still slightly constipated. Weight 156 lbs. 2 oz.

Feb. 7, 1909. Perfectly well; bowels regular. Weight 154 lbs. 8 oz.

Feb. 14, 1909. Slightly constipated during past week, otherwise well. Weight 150 lbs. 8 oz.

Feb. 28, 1909. Perfectly well; bowels regular. Weight 153 lbs. 4 oz.

Mar. 14, 1909. Perfectly well; bowels regular. Weight 155 lbs.

Mar. 16, 1909. Perfectly well; bowels regular. Weight 155 lbs. Complete physical examination shows no change from that made Oct. 16, 1908. Temperature 98.6, pulse 85, respiration 17.

URINE.

Oct. 16, 1908. Color normal, acid reaction, specific gravity 1.022, albumen absent, sugar absent. Sediment—rare leucocyte and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare small round and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare squamous cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare small round cells, many calcium oxalate crystals.

Feb. 14, 1909. Last day of starch diet. Urine shows slight trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare small and large round cell, many calcium oxalate and acid sodium urate crystals. A little mucus.

Mar. 15, 1909. Albumen absent. Sediment—rare small round and squamous cell, rare spermatozoa, many calcium oxalate crystals and acid sodium urate crystals.

BLOOD.

Oct. 16, 1908. Hemoglobin 100 (Tallquist).

Feb. 7, 1909. Hemoglobin 100, whites 7,500, reds 4,900,000.

Feb. 28, 1909. Hemoglobin 100, whites 6,000, reds 4,800,000.

Mar. 16, 1909. Hemoglobin 100, whites 8,000, reds 5,000,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. No disturbance in health throughout this period except (1) slightly constipated, (2) coryza from Jan. 20 to 24, (3) urine showed slight trace of sugar on last day of starch diet.

Total gain in weight 2 lbs. 12 oz.

Subject 2 (G. E. E.).

Oct. 18, 1908.

Age: 24 years.

Past history: Negative.

Examination: Well developed and nourished. Height 5 ft. 7 in., weight 135 lbs. 4 oz. Temperature 98.6, pulse 90, respiration 16. Hemoglobin 100. Chest measurements—full expiration 82 cm., full inspiration 84.4 cm. Lung capacity 200 cu. in. Mouth negative. No palpable glands. Reflexes normal. Lungs negative. Heart apex fifth space, 6.5 cm. from median line, left border 7 cm. from median line, right border 1 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from seventh rib to costal margin.

Nov. 15, 1908. Feels perfectly well; bowels regular. Weight 133 lbs.

Nov. 29, 1908. Feels perfectly well; bowels regular. Weight 135 lbs. 12 oz.

Dec. 13, 1908. Feels perfectly well; bowels regular. Weight 134 lbs. 8 oz.

Jan. 10, 1909. Feels perfectly well; bowels regular. Weight 135 lbs. 14 oz.

Jan. 22, 1909. Slight diarrhea early this morning, otherwise well. Weight 137 lbs. 5 oz.

Feb. 4, 1909. Complained of soreness in right side of throat for four days, slight coryza. Examination shows right tonsil slightly enlarged and reddened, no patches.

Feb. 7, 1909. Throat normal. Weight 136 lbs. 11 oz.

Feb. 14, 1909. Feels well. Slightly constipated while on starch diet. Weight 136 lbs. 11 oz.

Feb. 28, 1909. Perfectly well; bowels regular. Weight, 137 lbs. 14 oz.

Mar. 14, 1909. Feels perfectly well; bowels regular. Weight, 138 lbs. 13 oz.

Mar. 16, 1909. Complete physical examination shows no change from that made Oct. 18, 1908. Temperature 98.6, pulse 80, respiration 16.

URINE.

Oct. 18, 1908. Color normal, acid reaction, specific gravity 1.021, albumen absent, sugar absent. Sediment—rare small round and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare small round and neck of bladder and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare small and squamous cell, many calcium oxalate and rare uric acid crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare neck of bladder and squamous cell, rare spermatozoa, many oxalate acid crystals.

Feb. 14, 1909. Last day of starch diet urine showed slight trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small round cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 18, 1908. Hemoglobin 100.

Jan. 22, 1909. Hemoglobin 100, whites 10,000, reds 5,200,000.

Feb. 9, 1909. Hemoglobin 100, whites 8,000, reds 5,000,000.

Mar. 14, 1909. Hemoglobin 100, whites 6,500, reds 5,000,000.

RÉSUMÉ.

Normal, healthy individual. Period of observation five months. No disturbance in health throughout this period except (1) Jan. 27 slight diarrhea without known cause, (2) Feb. 1 to 3 slight attack of tonsilitis, (3) Feb. 8 to 15 while on starch diet slightly constipated, and urine showed slight trace of sugar on last day of diet.

Total gain in weight 3 lbs. 2 oz.

Subject 3 (H. H.).

Oct. 18, 1908.

Age: 24 years.

Past history: Acute nephritis six years ago following ingestion of turpentine; urine was normal at end of six weeks.

Examination: Well nourished. Height 5 ft. 10 in. Weight 154 lbs. 1 oz. Temperature 98.4, pulse 76, respiration 15. Hemoglobin 100. Chest measurements—full expiration 83 cm., full inspiration 84.4 cm. Lung capacity 230 cu. in. Mouth negative. No palpable glands. Reflexes normal. Slight eczema on both hands. Lungs negative. Heart apex fifth space, 7 cm. from median line, left border 7.5 cm. from median line, right border 1.5 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from lower border of fifth rib to costal margin; edge of liver not palpable.

Oct. 28, 1908. Had four or five loose movements. Bowels regular since. Feels perfectly well. Weight 152 lbs. 11 oz.

Nov. 29, 1908. Movements rather loose this past week. Feels perfectly well. Weight 154 lbs. 1 oz.

Dec. 13, 1908. Has had some pain in back in region of both kidneys, more severe at night for one week. Character of the pain much the same as he had during attack of acute nephritis. This is due to a slight cold. Has been working every day. Bowels regular. Examination shows some tenderness in the muscles over painful region. Motion of spine normal. Urine negative. Weight 155 lbs.

Jan. 10, 1909. Pain in back disappeared Dec. 15. Felt perfectly well ever since. Bowels regular. Weight 156 lbs. 3 oz.

Jan. 24, 1909. Feels perfectly well. Has had two or three loose movements this week. Weight 157 lbs. 4 oz.

Feb. 7, 1909. Feels perfectly well; bowels regular. Weight 158 lbs. 13 oz.

Feb. 14, 1909. While on starch diet has been somewhat nauseated after each meal of starch paste. Has intense craving for food. Diarrhea Feb. 13. Urine contains no sugar. Feels weak. Weight 157 lbs. 1 oz. Physical examination shows no change from that made Oct. 18, 1908. Temperature 98.6, pulse 90, respiration 17.

URINE.

Oct. 18, 1908. Color normal, acid reaction, specific gravity 1.022, albumen absent, sugar absent. Sediment—rare small round, neck of bladder, and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare leucocyte and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 13, 1908. Albumen absent, sugar absent. Sediment—rare small round and squamous cell, rare uric acid crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare leucocyte and squamous cell, little mucus, many calcium oxalate crystals.

Feb. 15, 1909. Albumen absent, sugar absent. Sediment—rare leucocyte and squamous cell.

BLOOD.

Oct. 18, 1908. Hemoglobin 100.

Jan. 10, 1909. Hemoglobin 100, whites 7,000, reds 5,400,000.

Feb. 7, 1909. Hemoglobin 100, whites 8,000, reds 5,140,000.

Mar. 16, 1909. Hemoglobin 100, whites 10,000, reds 5,200,000.

RÉSUMÉ.

Normal, healthy individual. Acute nephritis six years ago, complete recovery in six weeks. Period of observation four months. No disturbance in health throughout this period except (1) Dec. 13, 1908, coryza, and pain in region of kidneys, urine negative; (2) slight gastric disturbance, nausea, and diarrhea while on starch diet. No sugar in urine.

Total gain in weight 3 lbs.

Subject 4 (C. A. H.).

Oct. 17, 1908.

Age: 29 years.

Past history: Five years ago appendix removed; three attacks during year and a half previous. Seven weeks ago infection of right little finger with enlargement of the epitrochlea and axillary glands.

Examination: Well developed and nourished. Height 5 ft. 9¼ in. Weight 186 lbs. Temperature 98.4, pulse 88, respiration 15. Hemoglobin 100. Chest measurements—full expiration 88.5 cm., full inspiration 100.8 cm. Lung capacity 295 cu. in. Mouth negative. Small gland in axilla and right elbow. Reflexes normal. Lungs negative. Heart apex fifth space, 9.5 cm. from median line, left border 10.5 cm. from median line, right border 2 cm. from median line. Rhythm normal, sounds normal. Abdominal examination—solid appendix scar, otherwise negative. Liver dullness from sixth rib to costal margin; edge of liver indefinitely palpable.

Nov. 15, 1908. Has had a slight tendency to be constipated since beginning saccharin, as a rule bowels perfectly regular. Feels perfectly well. Weight 185 lbs. 9 oz.

Nov. 29, 1908. Feels perfectly well. Still slightly constipated. Weight 191 lbs. 4 oz.

Dec. 17, 1908. Feels perfectly well; bowels regular. Weight 193 lbs. 5 oz.

Jan. 10, 1909. Stopped saccharin Dec. 19; began saccharin again Jan. 4. Was slightly constipated for two days after resuming saccharin, bowels regular since. Weight 196 lbs. 12 oz.

Jan. 24, 1909. Perfectly well; bowels regular. Weight 198 lbs. 12 oz.

Feb. 7, 1909. Perfectly well; bowels regular. Weight 198 lbs. 2 oz.

Feb. 14, 1909. Had a slight headache yesterday. Has been slightly constipated since he has been on starch diet. Urine contains slight trace of sugar. Otherwise no disturbance during starch diet.

Feb. 28, 1909. Feels well. Slightly constipated. Weight 199 lbs. 12 oz.

Mar. 14, 1909. Feels perfectly well; bowels regular. Weight 201 lbs. 6 oz.

Mar. 16, 1909. Complete physical examination shows no change from that made Oct. 17, 1908. Temperature 98.6, pulse 72, respiration 16.

URINE.

Oct. 17, 1908. Color slightly high, acid reaction, specific gravity 1.025, albumen absent, sugar absent. Sediment—rare squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare small round and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare leucocyte and squamous cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—small round and squamous cell, rare spermatozoa, many calcium oxalate crystals.

Feb. 14, 1909. Slight trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare small round cell, rare spermatozoa, many calcium oxalate and sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate and acid sodium urate crystals, little mucus.

BLOOD.

Oct. 17, 1908. Hemoglobin 100.

Jan. 10, 1909. Hemoglobin 100, whites 9,000, reds 5,900,000.

Mar. 12, 1909. Hemoglobin 100, whites 8,000, reds 6,000,000.

RÉSUMÉ.

Normal, healthy individual. Period of observation five months. No disturbance in health throughout this period except (1) slightly constipated throughout greater part of time, (2) urine showed slight trace of sugar on last day of starch diet.

Total gain in weight 15 lbs. 6 oz.

Subject 5 (J. H. P.).

Oct. 18, 1908.

Age: 28 years.

Past history: Typhoid fever seven years ago, no complications.

Examination: Well developed and nourished. Height 5 ft. 8 in. Weight 142 lbs. 2 oz. Temperature 98.4, pulse 78, respiration 15. Hemoglobin 100. Chest measurements—full expiration 83 cm., full inspiration 94.3 cm. Lung capacity 235 cu. in. Mouth negative. A few very small glands in neck and groin. Reflexes normal. Lungs negative. Heart apex fifth space, 6 cm. from median line, left border 7 cm. from median line, right border 2 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from sixth rib to costal margin; edge of liver not palpable.

Nov. 15, 1908. Perfectly well; bowels regular. Weight 144 lbs. 8 oz.

Nov. 29, 1908. Perfectly well; bowels regular. Weight 146 lbs. 4 oz.

Dec. 15, 1908. Perfectly well; bowels regular. Weight 148 lbs. 13 oz.

Jan. 10, 1909. Perfectly well; bowels regular. Weight 146 lbs. 14 oz.

Jan. 24, 1909. Perfectly well; bowels regular. Weight 148 lbs. 11 oz.

Feb. 7, 1909. Slight attack of tonsilitis Feb. 1 to 4, did not give up work. Bowels regular. Feels perfectly well now. Weight 144 lbs. 9 oz.

Feb. 14, 1909. No disturbance while on starch diet. Urine showed slight trace of sugar. Weight 144 lbs.

Feb. 28, 1909. Perfectly well; bowels regular. Weight 145 lbs. 14 oz.

Mar. 14, 1909. Perfectly well; bowels regular. Weight 145 lbs. 4 oz. Complete physical examination shows no change from that made Oct. 18, 1908. Temperature 98.6, pulse 76, respiration 17.

URINE.

Oct. 18, 1908. Color high, acid reaction, specific gravity 1.032, albumen absent, sugar absent. Sediment—rare leucocyte and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare leucocyte, small caudate and squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare small round and squamous cell, many calcium oxalate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare small round and squamous cells, many calcium oxalate crystals.

Feb. 14, 1909. Urine shows slight trace of sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare large round and neck of bladder cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 18, 1908. Hemoglobin 100.

Feb. 5, 1909. Hemoglobin 100, whites 8,000, reds 5,200,000.

Feb. 26, 1909. Hemoglobin 100, whites 7,000, reds 5,000,000.

Mar. 20, 1909. Hemoglobin 100, whites 7,800, reds 5,200,000.

RÉSUMÉ.

Normal healthy individual. Period of observation five months. Typhoid fever six years ago. No disturbance in health during period of observation except (1) slight attack of tonsilitis Feb. 1 to 4, (2) urine showed slight trace of sugar on last day of starch diet.

Total gain in weight 3 lbs. 2 oz.

Subject 6 (W. G. S.).

Oct. 17, 1908.

Age: 21 years.

Past history: Subject to migraine.

Examination: Well developed and nourished. Height 5 ft. 8¼ in. Weight 140 lbs. 4 oz. Temperature 98.6, pulse 90, respiration 16. Hemoglobin 100. Chest measurements—full expiration 81 cm., full inspiration 89 cm. Lung capacity 275 cu. in. Mouth negative. Occasional small gland in neck and groins. Reflexes normal. Lungs—left apex slightly dull, no change in breathing. No râles. Fremitus normal. Heart apex fifth space, 7 cm. from median line, left border 8 cm. from median line, right border 2 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness from seventh rib to costal margin; edge of liver not palpable.

Nov. 15, 1908. Attack of migraine Nov. 6 lasting 15 hours. Anorexia for four days. Bowels regular. Weight 139 lbs. 3 oz.

Nov. 29, 1908. Feels well; slightly constipated. Weight 144 lbs. 3 oz.

Dec. 15, 1908. Feels well; slightly constipated. Weight 145 lbs. 1 oz.

Jan. 10, 1909. Feels well; slightly constipated. Weight 148 lbs. 7 oz.

Jan. 24, 1909. Perfectly well; bowels regular. Weight 149 lbs.

Feb. 7, 1909. Perfectly well; bowels regular. Weight 149 lbs. 6 oz.

Feb. 14, 1909. Attack of migraine Feb. 9 lasting 18 hours, some gastric disturbance during attack. Slightly constipated. Urine on last day of starch diet gave no reaction for sugar.

Feb. 28, 1909. Feels well; slightly constipated. Weight 147 lbs. 15 oz.

Mar. 14, 1909. Very severe attack of migraine from Mar. 6 to 7, stomach slightly upset for two days following. Feels well now; bowels regular. Complete physical examination shows no change from that made Oct 17, 1908. Temperature 98.6, pulse 80, respiration 16.

URINE.

Oct. 17, 1908. Color slightly pale, acid reaction, albumen absent, sugar absent. Sediment—rare small round and squamous cell.

Nov. 23, 1908. Albumen absent. Sediment—rare squamous cell, many ammonium urate and triple phosphate crystals.

Dec. 18, 1908. Albumen absent. Sediment—rare leucocyte and squamous cell, many calcium oxalate and rare acid sodium urate crystals.

Jan. 23, 1909. Albumen absent. Sediment—rare small round, neck of bladder and squamous cell, many calcium oxalate crystals.

Feb. 14, 1909. No reaction for sugar.

Feb. 23, 1909. Albumen absent. Sediment—rare leucocyte and squamous cell, many calcium oxalate and acid sodium urate crystals.

Mar. 15, 1909. Albumen absent. Sediment—rare leucocyte and squamous cell, many calcium oxalate and acid sodium urate crystals.

BLOOD.

Oct. 17, 1908. Hemoglobin 100.

Feb. 9, 1909. Hemoglobin 100, whites 12,000, reds 5,350,000.

Feb. 20, 1909. Hemoglobin 100, whites 8,000, reds 5,000,000.

Mar. 25, 1909. Hemoglobin 100, whites 9,000, reds 5,200,000.

RÉSUMÉ.

Normal healthy individual. Subject to migraine. Period of observation five months. No disturbance in health throughout this period except (1) three attacks of migraine, (2) bowels slightly constipated during greater part of time. No excretion of sugar in urine at end of starch diet period.

Total gain in weight 7 lbs. 12 oz.

Subject 7 (P. D. W.).

Oct. 18, 1908.

Age: 22 years.

Past history: Negative.

Examination: Well developed and nourished. Height 5 ft. 9¼ in. Weight 192 lbs. 5 oz. Temperature 98.4, pulse 66, respiration 15. Hemoglobin 100. Chest measurements—full expiration 93.5 cm., full inspiration 99.4 cm. Lung capacity 310 cu. in. Mouth negative. No palpable glands. Reflexes normal. Lungs negative. Heart apex fifth space, 9.5 cm. from median line, left border 10.5 cm. from median line, right border 2 cm. from median line. Rhythm normal, sounds normal. Abdominal examination negative. Liver dullness sixth rib to costal margin; edge of liver indefinitely palpable.

Oct. 25, 1908. Slight attack of follicular tonsilitis, temperature 100.

Oct. 29, 1908. Throat feels much better, temperature 99. Has slight jaundice; edge of liver palpable.

Nov. 9, 1908. Jaundice entirely disappeared. Has kept at work throughout attack. Feels rather weak. Weight 186 lbs.

Nov. 30, 1908. Feels perfectly well; bowels regular. Weight 186 lbs. 12 oz.

Dec. 12, 1908. Feels perfectly well; bowels regular. Weight 187 lbs.

URINE.

Oct. 18, 1908. Color slightly high, acid reaction, specific gravity 1.023, albumen absent, sugar absent. Sediment—small round and squamous cell.

Oct. 29, 1908. Color high, acid reaction, albumen slightest possible trace, bile present, no casts, rare normal blood globule, many small and large round cells, some mucus, bile stain.

Nov. 23, 1908. Albumen absent. Sediment—few leucocyte, small round, neck of bladder and squamous cell, many ammonium urate crystals.

RÉSUMÉ.

Normal healthy individual. Period of observation two months. No disturbance in health throughout this period except on Oct. 25 attack of tonsilitis, followed on Oct. 29 by an attack of catarrhal jaundice which lasted until Nov. 9 (11 days). Total loss in weight 5 lbs. 5 oz.

METHODS OF ANALYSIS.[1]

For the determination of urea, ammonia, kreatinin, sulphur, sulphates, indican, and acidity Folin's methods were used. The uric acid was determined according to Folin–Shaffer; the chlorine according to Volhard. The phosphates were determined volumetrically and the total nitrogen according to Kjeldahl.

RÉSUMÉ OF THE ANALYTICAL FINDINGS.[2]

VOLUME OF THE URINE.

There is room for the suspicion that saccharin in the doses used tends to increase the daily volume of the urine. By adding the average volumes of the different periods for the five saccharin men who finished the experiment (omitting the final period when all took

[1] The following assistants were employed in the work: W. R. Bloor, C. Farmer, C. J. Pettibone, A. Kober, A. M. Courtney, C. H. Bloor, Dr. H. Goodall.

[2] See pages 332–375 for detailed data.

saccharin) we obtain 28,902. The corresponding figure for the men who took no saccharin is 25,813, which converted into a daily average would give 1,445 c. c. for the saccharin men as against 1,291 c. c. for the controls. The same conclusion is suggested by the fact that the average volume of urine is distinctly increased in two of the five controls during the final week when they also took saccharin. The fact is, however, not important. It is probably due to the fact that the men usually "rinsed down" the saccharin with water, as they were frequently observed to do before proceeding with the meals. Certainly no distinct diuretic effects can be ascribed to the substance.

TOTAL NITROGEN.

The figures for the total nitrogen eliminated with the urine show nothing peculiar that can be attributed to saccharin. The average nitrogen elimination was between 12 and 13 grams per day, not counting the week when the men were kept on a low nitrogen diet. A rather interesting fact to be noted in this connection is that B, who had a very vigorous appetite, eliminated on the average 15.5 grams of nitrogen and gained in weight 10 lbs. and 12 oz., the largest gain recorded among the controls; while No. 4, who made the greatest gain in weight among the saccharin men, eliminated only 12.2 grams of nitrogen per day, yet gained no less than 15 lbs. and 6 oz. The comparison becomes even more instructive if nitrogen and fat of the feces are taken into consideration, for B eliminated thus much more nitrogen than No. 4 and more than twice as much fat. If only these two men had been used for the experiment one might have been tempted to entertain the hypothesis that saccharin is a help rather than a hindrance to the most advantageous utilization of the food.

KREATININ.

Since the men on the whole gained rather than lost in weight, one would not expect to find the kreatinin elimination diminished or increased under the influence of saccharin. As a matter of fact the kreatinin elimination remained remarkably stationary in all the men, except in the case of the saccharin No. 4, who gained more than 15 lbs. in weight. His average kreatinin elimination showed a steady rise, a rise sufficient to indicate that his gain in weight was not all fat, but included also a gain of muscular tissues.

URIC ACID.

The uric acid output is usually much more easily affected than is the kreatinin output. This is strikingly shown in the uric acid figures for the low nitrogen period (Feb. 8–14). During this week

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the uric acid output averaged less than two-thirds as much as during the preceding or succeeding periods. No variations due to the use of saccharin are to be noted. Not a single saccharin man eliminated less uric acid in the last period than in the first.

AMMONIA.

Since saccharin was given as free saccharin, and not in the form of a salt, one would naturally expect some effect on the ammonia elimination. That such an effect was produced is hardly to be questioned. And yet the effect was so small that it is difficult to prove it by means of the analytical data. The average ammonia output was not unmistakably greater among the saccharin men than among the controls, nor was it unmistakably greater toward the end of the experiment than at the beginning, as it theoretically should be among the saccharin men, since the daily consumption of saccharin was then five times as great. The molecular weight of saccharin is, however, more than ten times as great as that of ammonia; 0.75 gram of the drug would theoretically call for only about 0.07 gram of ammonia to neutralize it. It was therefore only during the final period, and indeed only in the case of the controls, who up till that time had received no saccharin, that one could hope to be able to detect by analysis an actual increase in the ammonia formation. By inspection of the tables of averages it is found that there is such an increase in the ammonia elimination in all the controls. Whether the absolute amount of ammonia or its percentage of the total nitrogen is considered, there is in all the controls (A–E) a greater ammonia elimination during the period of March 8–15 than during the preceding period of February 15 to March 7.

The figures are as follows:

Period.	A		B		C		D		E	
	Gram.	*Per ct.*	*Gram.*	*Per ct.*	*Gram.*	*Per ct.*	*Gram.*	*Per ct.*	*Gram.*	*Per ct.*
Feb. 15 to Mar. 7....	0.35	2.9	0.55	3.5	0.44	3.4	0.36	2.9	0.39	3.3
Mar. 8 to Mar. 15....	.55	3.7	.71	4.2	.57	4.1	.39	3.3	.41	3.5

The fact that the ingestion of saccharin leads to an increased ammonia formation indicates that saccharin passes through the body as such and is not first combined with glycocoll, as is the case with many other aromatic compounds.

From the standpoint of health the withdrawal of the small quantities of ammonia corresponding to reasonable doses of the drug is of course without significance. Further, even this small ammonia formation should theoretically not occur when saccharin is used in the form of salts.

ACIDITY AND PHOSPHATES.

It is usually best to consider the acidity and the phosphates of urine together, since the one is determined chiefly by the other. So far as the influence of saccharin is involved none is detectable. The variations in the acidity as well as in the phosphates correspond to those usually found in any consecutive series of urines.

INDICAN.

Since saccharin is not a preservative, it was not to be expected that it would materially influence the putrefaction in the intestines and the consequent formation of indican. The analytical data bear out this point of view. The variations in the urinary indican are not materially different in the saccharin men from the corresponding variations in the controls. The greatest indican formation, as it happens, is to be found in the saccharin man No. 4, who gained over 15 lbs. in weight during the experiment.

SULPHUR, SULPHATES, AND SACCHARIN.

It was conceivably possible, though not at all probable, that a stable aromatic compound like saccharin could be destroyed in the animal organism. That it is not destroyed but passes through practically, if not wholly, unchanged we have proved by the determination of saccharin in the urine. The chief interest attaching to the sulphur and sulphate determinations lies in the fact that the presence of saccharin in the urine is clearly indicated by the figures for the neutral sulphur. Among the saccharin men there was to be noted an unmistakable increase in neutral sulphur from period to period as the dose of saccharin was increased. No such increase is to be found among the controls until the final period, when they also received saccharin. As was to be expected, the increase then found in the controls was greater than the increase found among the saccharin men, whose intake had been increased step by step to the final maximum dose.

It is interesting to note in this connection that the final neutral sulphur elimination was practically just as great in the controls as in the saccharin men. From this fact it would appear that all the saccharin which is absorbed from the intestinal tract is rather promptly eliminated and that there is no storage of the substance in the body. This is important because it greatly reduces the possibility of a cumulative effect which might possibly be obtained from the continuous use of the drug over much longer periods than that covered by this investigation, as, for example, when saccharin is used as a substitute for sugar by patients suffering from diabetes.

The fact that most of the saccharin taken by the mouth was eliminated with the urine in the course of a few hours was determined by

separate, direct experiments before the main metabolism work was begun. In a number of such preliminary experiments it was found that from 75 to 90 per cent of the saccharin taken reappeared in the urine in the course of 24 hours.

Later, a considerable number of saccharin determinations were made on the urines of our metabolism subjects during the high saccharin period, and corresponding figures were obtained. The conclusions arrived at on the basis of the neutral sulphur figures are therefore borne out by the direct saccharin determinations.

The saccharin extracts obtained from the urines possessed the characteristic sweet and bitter taste of the original substance. While we have not attempted to prove conclusively that saccharin is eliminated unchanged, all the facts obtained indicate that such is the case.

SACCHARIN IN THE URINE.

Subject.	Mar. 1–2 (dose 0.5 gram).		Mar. 3–4 (dose 0.5 gram).		Mar. 5 (dose 0.5 gram).		Mar. 6–7 (dose 0.5 gram).	
	Excreted.	Per cent.	Excreted.	Per cent.	Excreted.	Per cent.	Excreted.	Per cent.
	Gram.		*Gram.*		*Gram.*		*Gram.*	
1	0.465	93	0.39	78	0.45	90	0.46	92
2	.42	84	.44	88	.44	88	.44	88
4	.45	90	.39	78	.44	88	.44	88
5	.465	93	.46	92	.50	100	.44	88
6	.465	93	....	....	.35	70	....	....
Average	....	91	....	84	....	87	....	89

Subject or control.	Mar. 10–11 (dose 0.75 gram).		Mar. 12 (dose 0.75 gram).		Mar. 13–14 (dose 0.75 gram).		Mar. 15 (dose 0.75 gram).	
	Excreted.	Per cent.	Excreted.	Per cent.	Excreted.	Per cent.	Excreted.	Per cent.
	Gram.		*Gram.*		*Gram.*		*Gram.*	
1	0.72	96.0	0.69	92.0	0.66	88.9	0.66	88.9
2	.71	94.6	.65	88.0	.60	80.0	.68	90.6
4	.75	100.0	.75	100.0	.60	80.0	.71	94.6
5	.69	92.0	.69	92.0	.63	84.0	.65	88.0
6	.66	88.9	.60	80.0	.65	88.0	.63	84.0
A	.71	94.6	.60	80.0	.69	92.0	.75	100.0
B	.75	100.0	.66	88.9	.75	100.0	.75	100.0
C	.75	100.0	.60	80.0	....	....	.66	88.9
D	.65	88.0	.68	90.6	.60	80.0	.71	94.6
E	.74	98.6	.72	96.0	.65	88.0	.60	80.0
Average	....	95.3	....	88.75	....	86.7	....	90.96

Total average excretion, 89.1 per cent.

FECES.

On pages 261–329 will be found the records of the bacteriological examination of the feces. (The ordinary analytical data of the feces have been incorporated with the tables covering the analysis of the urine.)

Inasmuch as all the results obtained from the examination and analysis of the feces are entirely negative, so far as any visible effects due to the administration of saccharin are concerned, it would seem superfluous in a report of this kind to discuss the results in detail.

RESULTS OF BACTERIOLOGICAL EXAMINATION OF FECES.

Control A.

1908.

Oct. 20. Stool, gas production 33.3 per cent.
- Gram stain from fecal emulsion.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, rare large coccus, few diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and streptococcus.
    - Bacilli: Few small, few long, few large, few beaded.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms.
    - Cocci: Chiefly short streptococci.
    - Bacilli: Rather numerous small.

Nov. 1. Stool, gas production 40 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few large cocci and diplococci, rare streptococci.
    - Bacilli: Few long thick.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci, many diplococci, rare streptococci, and staphylococci.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms.
    - Cocci: Few small cocci.
    - Bacilli: Numerous small bacilli.

Nov. 8. Stool, gas production 14.1 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small staphylococci, rare streptococcus.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Few rare small coccus.
    - Bacilli: Few small bacilli, long thick bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Same varieties as in stain from fecal emulsion, except diplococci more numerous.
  - Gram-positive organisms.
    - Cocci: Very rare small coccus.
    - Bacilli: Small bacillus.

1908.

Nov. 15. Stool, gas production 33.1 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few diplococci, few large cocci, few streptococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Occasional small coccus and diplococcus.
    - Bacilli: Few small bacilli, few thick bacilli.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, rare streptococcus.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and streptococcus.
    - Bacilli: Small bacillus.

Nov. 22. Stool, gas production 21 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few large, few diplococci and streptococci.
  - Gram-positive organisms rather numerous.
    - Cocci: Few small cocci and occasional small diplococcus.
    - Baccilli: Few small, few large, few beaded.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Same varieties as in the stain from fecal emulsion; streptococci more numerous.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms increased in number.
    - Cocci: Few small cocci and diplococci, numerous streptococci.
    - Bacilli: Few small bacilli, rare large bacillus.

Nov. 30. Stool, gas production 11 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms rather numerous.
    - Cocci: Rather numerous cocci and diplococci.
    - Bacilli: Few medium, short, thick, and long bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few small diplococci, rare streptococci.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms.
    - Cocci: Rare small coccus.
    - Bacilli: Few small bacilli, and short thick bacilli.

1908.

Dec. 7. Stool, gas production 0.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Some small cocci and diplococci.

Bacilli: Numerous small, few large.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small.

Bacilli: Chiefly small, few long.

Gram-positive organisms, same forms as in stain from fecal emulsion but less numerous.

Dec. 14. Stool, gas production 28.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms numerous.

Cocci: Few small cocci and diplococci.

Bacilli: Numerous small bacilli, few long bacilli.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small, few diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms numerous.

Cocci: Few small cocci and diplococci, rare streptococcus.

Bacilli: numerous small, few large, thick.

1909.

Jan. 11. Stool, gas production 37 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, few diplococci.

Bacilli: Chiefly small, rare large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Few short small bacilli, occasional large bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small, numerous diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms very numerous.

Cocci: Few small cocci and diplococci.

Bacilli: Numerous small, few short thick, few long.

1909.

Jan. 18. Stool, gas production 50 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Few small cocci and diplococci, very many staphylococci.

Gram-positive organisms very numerous.

Cocci: Few small cocci, few streptococci.

Bacilli: Very many small bacilli.

Jan. 25. Stool, gas production 21.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Rather numerous small cocci and diplococci.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, few streptococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms not as numerous.

Cocci: Rare small coccus and streptococcus.

Bacilli: Few small bacilli, rare small bacillus.

Feb. 1. Stool, gas production 37.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms somewhat numerous.

Cocci: Few small cocci and diplococci, rare streptococcus.

Bacilli: Numerous medium and small.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci.

Bacilli: Very many small, numerous long.

Gram-positive organisms very few.

Bacilli: Rare medium.

1909.
Feb. 8. Stool, gas production 25.3 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Very rare small coccus and diplococcus.
Bacilli: Rare small and occasional large bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-positive organisms nearly as numerous as gram-negative.
Gram-negative organisms.
Cocci: Small cocci and diplococci, rare staphylococci and streptococci.
Gram-positive organisms..
Cocci: Rare small coccus and diplococcus.
Bacilli: Very many medium bacilli, rare beaded bacillus.
Feb. 14. Stool, gas production 16.8 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Bacilli: Rare medium bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms very few.
Bacilli: Rare medium bacillus, rare beaded bacillus.
Feb. 22. Stool, gas production 41.9 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Rare small bacillus, rare short thick bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-positive organisms predominate.
Gram-negative organisms.
Cocci: Small cocci and diplococci, numerous streptococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Cocci: Rare small coccus and diplococcus.
Bacilli: Very many thick, some beaded.

1909.

Mar. 1. Stool, gas production 28.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Rare small and medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci, few streptococci and staphylococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Bacilli: Rather numerous medium, rare beaded.

Mar. 9. Stool, gas production 28 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci, and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Occasional small and large bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms predominate.

Gram-negative organisms.

Cocci: Small cocci and diplococci.

Bacilli: Numerous small, many long.

Gram-positive organisms.

Bacilli: Many medium and large, large numbers of beaded.

Mar. 15. Stool, gas production 33 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large

Gram-positive organisms.

Bacilli: Occasional small medium and large bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms predominate.

Gram-negative organisms.

Cocci: Small cocci and diplococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Very many medium, few beaded.

Control B.

1908.

Nov. 1. Stool, gas production 50 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci, few diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few short thick.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Small bacillus.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly staphylococci, few diplococci and streptococci.
  - Gram-positive organisms rather numerous.
    - Cocci: Rare small coccus.
    - Bacilli: Numerous small bacilli; rare yeast cell.

Nov. 10. Stool, gas production 32.3 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci, few diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Very rare small coccus.
    - Bacilli: Small bacillus.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci, numerous diplococci, few streptococci.
    - Bacilli: Chiefly small, many long.
  - Gram-positive organisms numerous.
    - Cocci: Rare small coccus, few streptococci.
    - Bacilli: Rather numerous small.

Nov. 15. Stool, gas production 41.4 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci, few large cocci, rare diplococci, rare streptococcus, rare staphylococcus.
  - Gram-positive organisms very few.
    - Cocci: Rare small coccus.
    - Bacilli: Rare small bacillus.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Very many staphylococci, numerous large diplococci.
  - Gram-positive organisms considerably increased in number.
    - Cocci: Few small cocci, numerous streptococci.
    - Bacilli: Some small.

1908.

Nov. 22. Stool, gas production 56.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, few diplococci and streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Few small cocci and diplococci.

Bacilli: Numerous large thick.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small, few diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms less numerous.

Cocci: Few cocci and streptococci.

Bacilli: Few small, few large thick.

Nov. 30. Stool, gas production 53.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few short thick.

Gram-positive organisms numerous.

Cocci: Numerous small cocci and diplococci, occasional streptococci.

Bacilli: Many small bacilli, occasional short thick bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Many small cocci, many large diplococci.

Bacilli: Chiefly small, many short thick.

Gram-positive organisms numerous.

Cocci: Few small cocci and diplococci and streptococci.

Bacilli: Very many colon-like bacilli.

Dec. 7. Stool, gas production 46.8 per cent.

Gram stain from fecal emulsion.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms numerous.

Cocci: Many small cocci and diplococci.

Bacilli: Few small.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms not increased in number.

Cocci: Numerous small cocci and diplococci, few streptococci.

Bacilli: Rare small bacillus.

1908.

Dec. 14. Stool, gas production 31.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci, few small and large diplococci.

Bacilli: Chiefly small, few short thick.

Gram-positive organisms few.

Cocci: Few small cocci and diplococci.

Bacilli: Few small.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Many large diplococci, many large staphylococci, few streptococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms more numerous.

Bacilli: Many small.

1909.

Jan. 4. Stool, gas production 59.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci, few large diplococci, rare streptococcus.

Bacilli: Chiefly small, few long.

Gram-positive organisms few.

Cocci: Rare small coccus.

Bacilli: Few small.

Jan. 11. Stool, gas production 37.8 per cent.

Gram stain from fecal emulsion.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly small, few large, few diplococci.

Bacilli: Chiefly small bacilli, occasional short thick bacillus.

Gram-positive organisms rather numerous.

Cocci: Numerous small cocci and diplococci.

Bacilli: Occasional small and short thick.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Many small cocci, many large diplococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms numerous.

Cocci: Many small cocci and diplococci.

Bacilli: Few small bacilli, occasional short thick.

Jan. 18. Stool, gas production 40.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, rare large, few diplococci.

Bacilli: Chiefly small.

Gram-positive organisms few.

Cocci: Occasional small coccus and diplococcus.

Bacilli: Small bacillus.

1909.

Jan. 18. Stool, gas production 40.7 per cent—Continued.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Numerous small cocci and many large diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms rather numerous.

Bacilli: Numerous large, numerous beaded.

Jan. 25. Stool, gas production 32.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, few large cocci, few diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Few small.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Small cocci and diplococci, few streptococci and staphylococci

Bacilli: Chiefly small, many long.

Gram-positive organisms numerous.

Cocci: Few small cocci.

Bacilli: Very many short thick.

Feb. 1. Stool, gas production 39.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Chiefly small cocci and diplococci, few streptococci, few staphylococci.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Very many medium bacilli and beaded bacilli.

Feb. 8. Stool, gas production 42.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Occasional medium bacillus.

1909.

Feb. 8. Stool, gas production 42.1 per cent—Continued.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Chiefly small cocci and diplococci, few streptococci.

Bacilli: Many small, numerous long.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Very many medium, few beaded.

Feb. 14. Stool, gas production 27.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Few medium bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Bacilli: Very rare medium bacillus.

Feb. 22. Stool, gas production 21.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Medium bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Numerous small cocci and diplococci, many staphylococci and streptococci.

Bacilli: Chiefly small.

Gram-positive organisms.

Cocci: Many small cocci and diplococci, few streptococci.

Bacilli: Many medium.

Mar. 2. Stool, gas production 32.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, few large cocci and diplococci.

Bacilli: Chiefly small, rare large.

Gram-positive organisms few.

Bacilli: Occasional medium and large bacillus.

1909.

Mar. 2. Stool, gas production 32.1 per cent—Continued.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci, few staphylococci, rare streptococcus.

Bacilli: Chiefly small, many long.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Many medium bacilli, occasional large bacillus.

Mar. 9. Stool, gas production 21.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, numerous long streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Bacilli: Very rare medium bacillus.

Mar. 15. Stool, gas production 24.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-positive nearly as numerous as gram-negative organisms.

Gram-negative organisms.

Cocci: Small cocci and diplococci, many staphylococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Cocci: Many small cocci and diplococci, numerous staphylococci.

Bacilli: Rare small bacillus, many beaded bacilli.

Control C.

1908.

Oct. 20. Stool, gas production 22.6 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Chiefly small, few large cocci, few diplococci, few staphylococci.

Bacilli: Chiefly small, few large thick.

1908.

Oct. 20. Stool, gas production 22.6 per cent—Continued.

Gram stain from fecal emulsion—Continued.

Gram-positive organisms.

Cocci: Many small and large cocci and diplococci, few streptococci.

Bacilli: Few small, many short thick, and rare long.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small.

Bacilli: Chiefly small, few long.

Gram-positive organisms few.

Cocci: Few small cocci.

Bacilli: Small, few beaded.

Oct. 28. Stool, gas production 48.6 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci, few staphylococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Few small.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, many long streptococci and staphylococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms few.

Cocci: Rare small coccus.

Bacilli: Few small, few beaded.

Nov. 1. Stool, gas production 25.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci, few diplococci, rare streptococci and staphylococci.

Bacilli: Chiefly small, few thick.

Gram-positive organisms quite numerous.

Cocci: Many small cocci and staphylococci.

Bacilli: Few small and large.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly staphylococci, few streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms very few.

Cocci: Rare small diplococcus.

Bacilli: Small bacillus.

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Nov. 8. Stool, gas production 4.9 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci, few small and large diplococci, few streptococci and staphylococci.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Few small, few large.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small numerous streptococci and staphylococci.
    - Bacilli: Chiefly small.
  - Gram-positive organisms.
    - Cocci: Rare small coccus.
    - Bacilli: Small bacillus; few yeast cells.

Nov. 15. Stool, gas production 33 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few large, few small diplococci, few streptococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Few.
    - Bacilli: Few small, few beaded.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms slightly increased in number.
    - Cocci: Few diplococci.
    - Bacilli: Few small bacilli, rare beaded bacillus.

Nov. 22. Stool, gas production 41.2 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, few streptococci.
    - Bacilli: Chiefly small, few short thick.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Small bacillus.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci, numerous streptococci.
    - Bacilli: Very many small, some long.
  - Gram-positive organisms more numerous.
    - Cocci: Few small.
    - Bacilli: Many short thick.

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Nov. 30. Stool, gas production 18.4 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small cocci, many large diplococci, few streptococci and staphylococci.
Bacilli: Chiefly small, few thick.
Gram-positive organisms numerous.
Cocci: Numerous small cocci, few streptococci, few diplococci.
Bacilli: Few small.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small.
Bacilli: Chiefly small, some long.
Gram-positive organisms numerous.
Cocci: Rare streptococcus.
Bacilli: Numerous small.
Dec. 7. Stool, gas production 26.8 per cent.
Gram stain from fecal emulsion.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Chiefly small, some large cocci, numerous large diplococci, few streptococci.
Bacilli: Chiefly small, few short thick.
Gram-positive organisms numerous.
Cocci: Rare small coccus and diplococcus.
Bacilli: Few small, numerous short thick.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Many small, many large cocci, numerous large diplococci.
Bacilli: Chiefly small, few large thick.
Gram-positive organisms.
Bacilli: Numerous small, few beaded.
Dec. 14. Stool, gas production 21.5 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small, few large diplococci, few streptococci.
Bacilli: Chiefly small bacilli, rare thick bacillus.
Gram-positive organisms few.
Cocci: Rare small coccus.
Bacilli: Few small bacilli, rare short thick bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Same forms as in stain from fecal emulsion, streptococci more numerous, few staphylococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Small bacillus.

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Jan. 4. Stool, gas production 35.7 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few small diplococci, rare staphylococci.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms numerous.
    - Cocci: Many small cocci, many small and large diplococci.
    - Bacilli: Few small, few short thick.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, rare streptococcus.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms.
    - Cocci: Numerous small cocci and diplococci.
    - Bacilli: Few small.

Jan. 11. Stool, gas production 36.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci, few large diplococci, few streptococci and staphylococci.
    - Bacilli: Chiefly small, few short thick.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Few small bacilli, rare thick bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Very many staphylococci and streptococci.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms numerous.
    - Cocci: Rare small coccus, few diplococcus.
    - Bacilli: Numerous thick.

Jan. 18. Stool, gas production 29 per cent.
- Gram stain from fecal emulsion.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Many small cocci, few large diplococci, few streptococci and staphylococci.
    - Bacilli: Chiefly small.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Few small bacilli, rare short thick bacillus.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly staphylococci and streptococci.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms.
    - Cocci: Rare small coccus.
    - Bacilli: Small bacillus, short thick bacillus.

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Jan. 25. Stool, gas production 41.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Few small cocci and diplococci, occasional large diplococcus.
    - Bacilli: Few medium.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small.
    - Bacilli: Very many small, numerous long.
  - Gram-positive organisms increased in number.
    - Bacilli: Numerous medium, few beaded.

Feb. 1. Stool, gas production 34 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Rare medium bacillus.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly staphylococci, few streptococci.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms very few.
    - Cocci: Rare small coccus.
    - Bacilli: Medium bacillus.

Feb. 8. Stool, gas production 31.4 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, rare staphylococci and streptococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Bacilli: Rare medium bacillus.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, very many staphylococci, numerous streptococci.
  - Gram-positive organisms few.
    - Cocci: Occasional small cocci and diplococci.
    - Bacilli: Few medium.

1909.

Feb. 14. Stool, gas production 29.5 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Bacilli: Occasional small and medium bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly staphylococci, few streptococci, few small cocci and diplococci.

Bacilli: Chiefly small.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Rare bacillus.

Feb. 22. Stool, gas production 31.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Bacilli: Very rare medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-positive organisms as numerous as gram-negative.

Gram-negative organisms.

Cocci: Small cocci and diplococci, many staphylococci, few streptococci.

Bacilli: Chiefly small.

Gram-positive organisms.

Cocci: Numerous small cocci and diplococci, rare streptococcus.

Bacilli: Many medium thick, few beaded.

Mar. 1. Stool, gas production 26.5 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Very rare small coccus and diplococcus.

Bacilli: Rare medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, many staphylococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare beaded bacillus.

1909.
Mar. 9. Stool, gas production 35.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Bacilli: Few medium.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Many small cocci and diplococci, many staphylococci and streptococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Bacilli: Very few medium.

Mar. 15. Stool, gas production 39.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Small, few large.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Small bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, many staphylococci, occasional streptococcus.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Rather numerous medium.

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1908.
Oct. 29. Stool, gas production 31 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small, few large cocci, some small diplococci, rare streptococcus and staphylococcus.
Bacilli: Chiefly small, few short thick.
Gram-positive organisms few.
Cocci: Rare small coccus.
Bacilli: Few short thick.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few small diplococci, rare streptococcus, rather numerous staphylococci.
Gram-positive organisms more numerous.
Cocci: Rare small coccus, few staphylococci and streptococci.
Bacilli: Occasional short thick bacillus, few beaded bacilli.

1908.

Nov. 1. Stool, gas production 38.6 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Small and large cocci and diplococci.

Bacilli: Few short thick, few large.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Numerous small cocci and diplococci, many streptococci, few staphylococci.

Bacilli: Chiefly small, some very long.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Rare small bacillus, rare short thick bacillus.

Nov. 8. Stool, gas production 22.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, few large cocci and diplococci.

Bacilli: Chiefly small, few short thick.

Gram-positive organisms few.

Cocci: Occasional small.

Bacilli: Small bacillus and short thick bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci.

Bacilli: Chiefly small, numerous long.

Gram-positive organisms slightly increased in number.

Cocci: Few small cocci.

Bacilli: Small bacillus, many yeast cells.

Nov. 15. Stool, gas production 42.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci, few small and large diplococci.

Bacilli: Chiefly small, few long, few short thick.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small.

Bacilli: Chiefly small, some long.

Gram-positive organisms few.

Cocci: Rare small coccus.

Bacilli: Few small.

1908.

Nov. 22. Stool, gas production 46 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Bacilli: Few small bacilli, rare medium bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few large cocci, rare streptococcus.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Rather numerous small, few beaded.

Nov. 30. Stool, gas production 17.4 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, numerous large.
  - Gram-positive organisms rather numerous.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Few small and large bacilli, rather numerous medium bacilli.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, numerous staphylococci.
    - Bacilli: Very many small, numerous long.
  - Gram-positive organisms more numerous.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Numerous small, some beaded.

Dec. 7. Stool, gas production 20.8 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Numerous cocci and diplococci.
    - Bacilli: Few small, rather numerous medium thick.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci and diplococci.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms very few.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Few small and medium.

1908.
Dec. 14. Stool, gas production 23.9 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Few small cocci, few small and large diplococci.
Bacilli: Rare medium and small.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, many staphylococci and streptococci.
Bacilli: Chiefly small.
Gram-positive organisms few.
Cocci: Few small cocci and diplococci, rare large diplococcus, rare streptococcus.
Bacilli: Few small and medium bacilli, rare beaded bacillus.

1909.
Jan. 4. Stool, gas production 37.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Occasional small coccus and diplococcus, occasional large diplococcus.
Bacilli: Few small medium.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, some staphylococci, rare streptococcus.
Bacilli: Chiefly small, many long.
Gram-positive organisms few.
Cocci: Few small cocci and diplococci.
Bacilli: Few small medium bacilli, rare long and rare beaded bacillus.

Jan. 11. Stool, gas production 40.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus and diplococcus.
Bacilli: Few medium and small.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, many staphylococci and streptococci.
Gram-positive organisms numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Many medium bacilli, rare beaded bacillus.

1909.

Jan. 18. Stool, gas production 37 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small medium bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, many staphylococci and streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms quite numerous.

Cocci: Occasional small coccus and diplococcus.

Bacilli: Rather numerous medium bacilli.

Jan. 25. Stool, gas production 37.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus, rare large diplococcus.

Bacilli: Rare small medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, numerous staphylococci and streptococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms numerous.

Cocci: Rare small coccus and diplococcus.

Bacilli: Numerous medium.

Feb. 1. Stool, gas production 20.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, many staphylococci and streptococci.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Occasional small bacillus.

1909.

Feb. 8. Stool, gas production 38 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small and medium bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, many staphylococci and streptococci.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Occasional small bacillus.

Feb. 14. Stool, gas production 19.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci, few staphylococci and streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Rare bacillus.

Feb. 22. Stool, gas production 53 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rather numerous small cocci, few small and large diplococci.

Bacilli: Occasional medium bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, very many staphylococci, few streptococci.

Gram-positive organisms.

Cocci: Very many cocci and diplococci, occasional large diplococcus.

Bacilli: Very rare small bacillus.

1909.

Mar. 2. Stool, gas production 26.5 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Very rare coccus.

Bacilli: Very rare bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small and large diplococci, many streptococci, numerous staphylococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms.

Cocci: Very rare small coccus and diplococcus.

Mar. 9. Stool, gas production 25.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms numerous.

Cocci: Occasional small coccus and diplococcus, rare large diplococcus.

Bacilli: Rather numerous medium.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, many staphylococci and streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Cocci: Small rare coccus and diplococcus.

Mar. 15. Stool, gas production 47.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, many staphylococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms numerous.

Cocci: Few small cocci and diplococci.

Bacilli: Numerous medium.

Control E.

1908.

Oct. 20. Stool. gas production 33.3 per cent.
Gram stain from fecal emulsion.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small and large cocci. many small diplococci.
Bacilli: Chiefly small. few large.
Gram-positive organisms few.
Cocci: Few small cocci and diplococci.
Bacilli: Few small bacilli. few large. few short thick.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small cocci, few small diplococci.
Bacilli: Very many small bacilli, some very long.
Gram-positive organisms.
Cocci: Rare coccus.
Bacilli: Occasional small and large bacillus.

Nov. 1. Stool, gas production 40 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small. few large.
Gram-positive organisms rather numerous.
Cocci: Numerous small cocci and diplococci.
Bacilli: Few large.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Many small cocci and diplococci. few streptococci.
Gram-positive organisms numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Numerous large.

Nov. 8. Stool. gas production 18 per cent.
Gram stain from fecal emulsion.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small. few large.
Gram-positive organisms few.
Cocci: Rare small coccus.
Bacilli: Few small and large.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small cocci. few small diplococci, few streptococci.
Bacilli: Many small. very many large, long.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Rare large bacillus; many yeast cells.

1908.

Nov. 15. Stool, gas production 20.4 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Chiefly small, occasional large.
Gram-positive organisms rare.
Cocci: Rare small coccus.
Bacilli: Rare bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few small diplococci and streptococci.
Bacilli: Very many small, few large.
Gram-positive organisms few.
Cocci: Rare small coccus.
Bacilli: Few small.

Nov. 22. Stool, gas production 1.4 per cent.
Gram stain from fecal emulsion.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms numerous.
Cocci: Numerous small.
Bacilli: Numerous short thick.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few large, rather numerous long streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms numerous.
Cocci: Few small cocci.
Bacilli: Rather numerous short thick.

Nov. 30. Stool, gas production 26.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few staphylococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Rare small coccus and diplococcus.
Bacilli: Few small bacilli, occasional short thick bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small cocci, few streptococci.
Bacilli: Many small, some long.
Gram-positive organisms numerous.
Cocci: Numerous small diplococci, few streptococci.
Bacilli: Rare large bacillus.

1908.

Dec. 7. Stool, gas production 28 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci, few staphylococci.

Bacilli: Chiefly small, few large thick.

Gram-positive organisms.

Cocci: Numerous large cocci, few large diplococci.

Bacilli: Few large, few short thick.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Many small cocci and diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms numerous.

Cocci: Rare small coccus, few streptococci.

Bacilli: Numerous large.

1909.

Jan. 11. Stool, gas production 13.6 per cent.

Gram stain from fecal emulsion.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Chiefly small, rare short thick bacillus.

Gram-positive organisms very few.

Cocci: Occasional small coccus and diplococcus.

Bacilli: Rare small and short thick bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small, few diplococci and streptococci.

Bacilli: Chiefly small, very many long.

Gram-positive organisms numerous.

Cocci: Few small cocci and diplococci, few streptococci.

Bacilli: Numerous medium.

Jan. 18. Stool, gas production 37.1 per cent.

Gram stain from fecal emulsion.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Many small cocci, few large cocci, few small diplococci, few streptococci.

Gram-positive organisms few.

Cocci: Occasional small coccus and diplococcus and streptococcus.

Bacilli: Chiefly small, rare large bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci, few streptococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms rather numerous.

Cocci: Few small cocci and diplococci, few streptococci.

Bacilli: Numerous short thick.

1909.

Jan. 25. Stool, gas production 10.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci, few small diplococci, rare large coccus and streptococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci, rare streptococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms numerous.

Cocci: Few small cocci and diplococci, few streptococci.

Bacilli: Numerous small, few large.

Feb. 1. Stool, gas production 37.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Bacilli: Numerous small and medium.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci.

Bacilli: Chiefly small.

Gram-positive organisms.

Bacilli: Rare medium bacillus.

Feb. 8. Stool, gas production 26 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, rare streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Bacilli: Rather numerous medium.

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1909.

Feb. 14. Stool, gas production 12.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Bacilli: Rare medium and large bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small cocci, few small diplococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms.
Bacilli: Rare medium and large bacillus.

Feb. 22. Stool, gas production 20.6 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Bacilli: Rare small and medium bacillus.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, many staphylococci and streptococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms numerous.
Cocci: Numerous small cocci and diplococci, few staphylococci and streptococci.
Bacilli: Rather numerous medium.

Mar. 2. Stool, gas production 50.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Bacilli: Rare small bacillus.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, many staphylococci, few streptococci.
Bacilli: Chiefly small, numerous long.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Few medium.

1909.

Mar. 9. Stool, gas production 23.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare streptococcus.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Bacilli: Rare medium bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Many small cocci, numerous staphylococci and streptococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms.
Cocci: Few small cocci.
Bacilli: Numerous medium.

Mar. 15. Stool, gas production 50 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Rare small coccus and diplococcus.
Bacilli: Few medium.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Many small cocci and diplococci, few staphylococci and streptococci.
Bacilli: Chiefly small, numerous long.
Gram-positive organisms.
Cocci: Rare small coccus, few streptococci.
Bacilli: Numerous medium.

Subject 1.

1908.

Oct. 20. Stool, gas production 18.9 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Many small, few large.
Gram-positive organisms rather numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Few small, numerous large thick bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: A few small and large cocci and diplococci, many streptococci.
Bacilli: Many small, a very few large.
Gram-positive organisms less numerous than in stain emulsion.
Cocci: Rare small.
Bacilli: Rare small bacillus, few beaded bacilli.

1908.

Oct. 29. Stool, gas production 23.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Many small, few large.

Gram-positive organisms rather numerous.

Cocci: Few small cocci, large diplococci.

Bacilli: Rare small and numerous large.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Few small cocci and diplococci.

Bacilli: Many small and long.

Gram-positive organisms.

Cocci: Very rare, small.

Bacilli: Small.

Nov. 1. Stool, gas production 42.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Many small, a few large.

Gram-positive organisms rather numerous.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small and rather numerous large, thick, bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci and staphylococci.

Bacilli: Many small.

Gram-positive organisms.

Cocci: Slight increase in number of cocci, few streptococci.

Bacilli: A few short thick.

Nov. 8. Stool, gas production 12.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few staphylococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Very few rare cocci.

Bacilli: Rare small bacillus, few thick bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small, large, cocci and diplococci, few staphylococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare cocci.

Bacilli: Small bacillus, many yeast cells.

1908.

Nov. 15. Stool, gas production 14.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Occasional small coccus and diplococcus.

Bacilli: Few small, numerous large, thick, bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small.

Bacilli: Small.

Gram-positive organisms somewhat increased.

Cocci: Occasional small coccus.

Bacilli: Few small, some beaded, rather numerous thick, large, bacilli.

Nov. 22. Stool, gas production 14.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Few small cocci and diplococci.

Bacilli: Rare small bacillus, many short, thick, bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare coccus.

Bacilli: Small, occasional beaded bacillus.

Nov. 30. Stool, gas production 5.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Few small and large cocci and diplococci.

Bacilli: Few small, numerous large.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few staphylococci.

Bacilli: Many small and many long.

Gram-positive organisms considerably diminished in number.

Cocci: Rare small.

Bacilli: Rare small, rare beaded.

1908.
Dec. 7. Stool, gas production 0.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms rather numerous.
Cocci: Rare coccus and diplococcus.
Bacilli: Few small bacilli, rather numerous large bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Many small and long.
Gram-positive organisms slightly more numerous.
Cocci: Rare coccus.
Bacilli: Rather small numerous bacilli.
Dec. 14. Stool, gas production 25.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, some large.
Gram-positive organisms rather numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Numerous small and large bacilli.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms slightly increased in number.
Cocci: Rare small coccus, few streptococci.
Bacilli: Numerous medium bacilli, few beaded bacilli.
1909.
Jan. 11. Stool, gas production 13.9 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Small.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, many streptococci.
Bacilli: Chiefly small, some long, few large.
Gram-positive organisms slightly increased.
Cocci: Few.
Bacilli: Small and large.

1909.

Jan. 18. Stool, gas production 37.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Large.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly streptococci and staphylococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms very few.

Cocci: Rare.

Bacilli: Small and rare beaded.

Jan. 25. Stool, gas production 33.5 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, and rare streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare.

Bacilli: Small.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly staphylococci and streptococci.

Gram-positive organisms very few.

Cocci: Rare small coccus and streptococcus.

Bacilli: Rare small bacillus, rare beaded bacillus.

Feb. 1. Stool, gas production 25.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, a few large.

Gram-positive organisms.

Cocci: Very few rare small cocci and diplococci.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Very rare small coccus.

Bacilli: Very rare small bacillus.

1909.

Feb. 8. Stool, gas production 23.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare.
Bacilli: Small.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small and large cocci, numerous streptococci and staphylocci.
Bacilli: Chiefly small.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Rare small bacillus.

Feb. 14. Stool, gas production 49.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and dip ococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Small bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small and long.
Gram-positive organisms not increased.
Bacilli: Very rare small bacillus.

Feb. 22. Stool, gas production 29 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci, many large diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Small bacillus and short thick bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci, rare large diplococci, some staphylococci and streptococci.
Bacilli: Chiefly small and long.
Gram-positive organisms considerably increased.
Cocci: Rather numerous large diplococci and streptococci.
Bacilli: Short thick and long thick.

1909.

Mar. 1. Stool, gas production 27.2 per cent.

- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms very few.
    - Cocci: Rare coccus.
    - Bacilli: Small and large bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci, many staphylococci and streptococci.
    - Bacilli: Small and long.
  - Gram-positive organisms not increased in number.
    - Cocci: Rare small coccus.
    - Bacilli: Small and large bacilli.

Mar. 9. Stool, gas production 24.6 per cent.

- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms very few.
    - Cocci: Rare small coccus.
    - Bacilli: Small bacillus.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small and long.
  - Gram-positive organisms more numerous.
    - Cocci: Few small cocci and diplococci, some streptococci.
    - Bacilli: Few thick.

Mar. 15. Stool, gas production 25.5 per cent.

- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms very few.
    - Cocci: Very rare coccus.
    - Bacilli: Small bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci, numerous staphylococci and streptococci.
  - Gram-positive organisms not increased.
    - Cocci: Very rare small coccus.
    - Bacilli: Very rare small bacillus.

Subject 2.

1908.

Oct. 20. Stool, gas production 31 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small, few large cocci and diplococci, occasional streptococcus.
Bacilli: Chiefly small, few large.
Gram-positive organisms very numerous.
Cocci: Few large and small cocci and diplococci, few streptococci.
Bacilli: Chiefly large bacilli, few beaded and few thick bacilli.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly streptococci.
Bacilli: Chiefly small and long.
Gram-positive organisms considerably diminished in number.
Cocci: Few large and small diplococci.
Bacilli: Numerous large, very many beaded bacilli.

Oct. 29. Stool, gas production 40.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms rather few.
Cocci: Few cocci and streptococci.
Bacilli: Few large bacilli, short thick bacilli and beaded.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-positive organisms nearly as numerous as gram-negative.
Gram-negative organisms.
Cocci: Many small cocci, few large.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Cocci: Chiefly streptococci.
Bacilli: Numerous medium bacilli.

Nov. 1. Stool, gas production 29.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large, few diplococci and rare streptococcus
Bacilli: Chiefly small, few large.
Gram-positive organisms rather numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Few beaded, few large bacilli.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Chiefly diplococci and streptococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms numerous.
Cocci: Few streptococci.
Bacilli: Chiefly large and beaded bacilli.

1908.
Nov. 8. Stool, gas production 25.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms very few.
Cocci: Rare coccus and diplococcus and streptococcus.
Bacilli: Few short thick bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Few cocci and large diplococci.
Bacilli: Chiefly small and long.
Gram-positive organisms very few.
Cocci: Rare small coccus and streptococcus.
Bacilli: Rare medium bacillus.

Nov. 15. Stool, gas production 36.5 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large, few diplococci.
Bacilli: Chiefly small, few thick bacilli.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Large bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small and large.
Bacilli: Chiefly small, some very long, few contain bodies taking the gram stain.
Gram-positive organisms comparatively few.
Cocci: Rare small coccus.
Bacilli: Few short, thick, and beaded bacilli.

Nov. 22. Stool, gas production 22.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small, few large, few large and small diplococci, rare streptococcus.
Bacilli: Chiefly small, occasional large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Small bacillus.
Gram stain from fermentation tube.
Bacilli slightly more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few streptococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms considerably increased.
Cocci: Many small cocci, few streptococci.
Bacilli: Few small bacilli.

1908.

Nov. 30. Stool, gas production 24.2 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, few streptococci.
    - Bacilli: Chiefly small, few short thick bacilli.
  - Gram-positive organisms.
    - Cocci: Few small cocci, few large diplococci.
    - Bacilli: Rather numerous large bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci, few diplococci, some large streptococci.
    - Bacilli: Chiefly small, some short thick.
  - Gram-positive organisms few.
    - Cocci: Few small cocci and streptococci.
    - Bacilli: Few small, few thick.

Dec. 7. Stool, gas production 30.6 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few diplococci.
    - Bacilli: Chiefly small, occasional long.
  - Gram-positive organisms.
    - Cocci: Few cocci and diplococci, rare streptococcus.
    - Bacilli: Occasional large bacillus, short thick bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Numerous large diplococci, rather numerous streptococci.
    - Bacilli: Chiefly small, numerous large.
  - Gram-positive organisms.
    - Cocci: Numerous streptococci.
    - Bacilli: Occasional small, many large.

Dec. 14. Stool, gas production 17.1 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci, many large diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms rather numerous.
    - Cocci: Few.
    - Bacilli: Occasional short thick bacillus, numerous large bacilli.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small, few streptococci.
    - Bacilli: Many small and long, numerous large thick.
  - Gram-positive organisms, number and character about the same as in the stain from fecal emulsion.

1909.

Jan. 4. Stool, gas production 19.2 per cent.

Gram stain from fecal emulsion.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly small, few diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Occasional small coccus and diplococcus.

Bacilli: Few small.

Gram stain from fermentation tube.

Cocci slightly more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly small, numerous large diplococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms somewhat diminished in number, character same as in stain from fecal emulsion.

Jan. 11. Stool, gas production 47.5 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, few large, few small and large diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare occasional coccus.

Bacilli: Large bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, numerous large diplococci, few streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms somewhat more numerous than in stain from fecal emulsion.

Cocci: Few small cocci and streptococci.

Bacilli: Rather numerous, large.

Jan. 18. Stool, gas production 28.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small and large bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small, rare large coccus, few streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms considerably increased.

Bacilli: Very many large thick bacilli.

1909.

Jan. 25. Stool, gas production 29.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, rare, large.

Gram-positive organisms.

Cocci: Many small cocci and diplococci.

Bacilli: Many small, few large.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms predominate.

Gram-negative organisms.

Cocci: Few cocci and streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Very many beaded bacilli.

Feb. 1. Stool, gas production 25.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative, organisms predominate.

Cocci: Chiefly small, few large, few small and large diplococci, rare streptococcus.

Bacilli: Chiefly small, rare large.

Gram-positive organisms very few.

Cocci: Very rare small coccus.

Bacilli: Few small.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms.

Cocci: Chiefly small cocci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Few small, many large, very many beaded.

Feb. 8. Stool, gas production 29.5 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large diplicocci, rare streptococcus.

Bacilli: Chiefly small, occasional large.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Chiefly small, few long.

Gram-positive organisms somewhat increased.

Cocci: Few cocci and streptococci.

Bacilli: Many small bacilli, rare large bacillus.

1909.

Feb. 14. Stool, gas production 39.9 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Small bacillus.
Gram stain from fermentation tube.
Bacilli in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms.
Cocci: Occasional small coccus.
Bacilli: Small bacillus.

Feb. 22. Stool, gas production 31.5 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Rare small coccus.
Bacilli: Rare small bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-positive organisms predominate.
Gram-negative organisms, same character as stain from fecal emulsion.
Gram-positive organisms.
Bacilli: Very many beaded bacilli, numerous large.

Mar. 1. Stool, gas production 22.5 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Very rare small coccus.
Bacilli: Very rare small bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few streptococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms considerably increased.
Bacilli: Numerous small bacilli, occasional beaded bacillus.

1909.
Mar. 9. Stool, gas production 32.5 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Few medium-sized bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small.
Bacilli: Very many small, few long.
Gram-positive organisms very few.
Bacilli: Few medium-sized bacilli.
Mar. 15. Stool, gas production 38.3 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare streptococcus.
Bacilli: Chiefly small, few long and large.
Gram-positive organisms very few.
Bacilli: Occasional medium-sized bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few diplococci.
Bacilli: Very many small bacilli.
Gram-positive organisms more numerous.
Bacilli: Considerable number of medium bacilli.

Subject 3.

1908.
Oct. 18. Stool, gas production 33.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very numerous.
Cocci: Large cocci and diplococci.
Bacilli: Numerous short, thick bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small.
Bacilli: Chiefly small and long.
Gram-positive organisms less numerous.
Cocci: Small rare coccus.
Bacilli: Thick bacillus, few beaded bacilli.

1908.

Nov. 1. Stool, gas production 58.5 per cent.
    Gram stain from fecal emulsion.
        Bacilli and cocci in about equal numbers.
        Gram-negative organisms predominate.
            Cocci: Small and large cocci and diplococci.
            Bacilli: Chiefly small, large thick.
        Gram-positive organisms few.
            Cocci: Rare small coccus.
            Bacilli: Occasional small, and long thick bacillus.
    Gram stain from fermentation tube.
        Bacilli more numerous than cocci.
        Gram-negative organisms predominate.
            Cocci: Chiefly small.
            Bacilli: Chiefly small, many long.
        Gram-positive organisms not increased.
            Bacilli: Few small, few long bacilli, few beaded bacilli.

Nov. 8. Stool, gas production 21.4 per cent.
    Gram stain from fecal emulsion.
        Bacilli and cocci in about equal numbers.
        Gram-negative organisms predominate.
            Cocci: Small and large cocci and diplococci.
            Bacilli: Chiefly small, few large.
        Gram-positive organisms few.
            Bacilli: Rare medium and large thick bacillus.
    Gram stain from fermentation tube.
        Bacilli more numerous than cocci.
        Gram-negative organisms predominate.
            Cocci: Chiefly small, few staphylococci.
            Bacilli: Chiefly small, numerous long.
        Gram-positive organisms.
            Bacilli: Rare medium bacillus, very many yeast cells.

Nov. 15. Stool, gas production 42.6 per cent.
    Gram stain from fecal emulsion.
        Bacilli and cocci in about equal numbers.
        Gram-negative organisms predominate.
            Cocci: Small and large cocci and diplococci.
            Bacilli: Chiefly small, few large.
        Gram-positive organisms.
            Bacilli: Very rare medium bacillus.
    Gram stain from fermentation tube.
        Bacilli and cocci in about equal numbers.
        Gram-negative organisms predominate.
            Cocci: Very many staphylococci and streptococci.
            Bacilli: Very many small bacilli, some long.
        Gram-positive organisms.
            Bacilli: Very rare beaded bacillus.

Nov. 22. Stool, gas production 12.7 per cent.
    Gram stain from fecal emulsion.
        Bacilli and cocci in about equal numbers.
        Gram-negative organisms predominate.
            Cocci: Small and large cocci and diplococci.
            Bacilli: Chiefly small, few large.

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1908.

Nov. 22. Stool, gas production 12.7 per cent—Continued.
Gram stain from fecal emulsion—Continued
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Few short, thick bacilli.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small, few large cocci, rare streptococcus.
Bacilli: Chiefly small, few large.
Gram-positive organisms slightly increased.
Cocci: Rather numerous small cocci and diplococci.
Bacilli: Very rare bacillus.

Nov. 30. Stool, no gas production.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms rather numerous.
Cocci: Rare and small coccus.
Bacilli: Rather numerous.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small, few small diplococci.
Bacilli: Very many small bacilli, some long.
Gram-positive organisms.
Bacilli: Few medium bacilli.

Dec. 7. Stool, gas production 31.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Few medium bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few diplococci, rare streptococcus.
Bacilli: Very many small, some long.
Gram-positive organisms.
Bacilli: Many medium bacilli.

Dec. 14. Stool, gas production 29.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Very rare medium bacillus.

1908.
Dec. 14. Stool, gas production 29.2 per cent—Continued.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small, few diplococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms increased.
Cocci: Rare small coccus and diplococcus.
Bacilli: Many medium.

1909.
Jan. 4. Stool, gas production 34.3 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Rare small coccus and diplococcus.
Bacilli: Rare medium bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Many streptococci and staphylococci.
Bacilli: Very many small.
Gram-positive organisms.
Bacilli: Very rare small bacillus.

Jan. 11. Stool, gas production 27.9 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Short thick bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Very many small, numerous long.
Gram-positive organisms.
Bacilli: Occasional medium bacillus.

Jan. 18. Stool, gas production 75.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare streptococcus.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Bacilli: Very rare medium bacillus.

1909.

Jan. 18. Stool, gas production 75.1 per cent—Continued.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive nearly as numerous as gram-negative organisms.

Gram-negative organisms.

Cocci: Few cocci and diplococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms increased.

Bacilli: Few medium, very many thick.

Jan. 25. Stool, gas production 35.6 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Few medium bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large, few diplococci.

Bacilli: Very many small, some long.

Gram-positive organisms.

Bacilli: Very numerous beaded bacilli.

Feb. 8. Stool, gas production 13.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Bacilli: Rare small, rare thick bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small diplococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms increased.

Bacilli: Many medium bacilli.

Feb. 14. Stool, gas production 50.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Bacilli: Rare medium, rare beaded.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large, few diplococci.

Bacilli: Chiefly small, many long.

Gram-positive organisms.

Bacilli: Rare medium bacillus, rare beaded bacillus.

Subject 4.

1908.

Nov. 4. Stool, gas production 21.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Many small, few large, few small and large diplococci, few staphylococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms very numerous.
    - Cocci: Many small cocci, few large cocci, few large and small diplococci.
    - Bacilli: Few small, few short thick.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly staphylococci.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms much diminished in number.
    - Cocci: Few small and large cocci and diplococci.
    - Bacilli: Rare small bacillus, very many yeast cells.

Nov. 15. Stool, gas production 47.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, rare short thick bacillus.
  - Gram-positive organisms very few.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Rare small bacillus.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci and diplococci.
    - Bacilli: Very many long and small bacilli.
  - Gram-positive organisms.
    - Cocci: Rare small coccus.
    - Bacilli: Small bacillus.

Nov. 22. Stool, gas production 34.8 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms very few.
    - Cocci: Very rare small coccus.
    - Bacilli: Small bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few large cocci and occasional streptococcus.
    - Bacilli: Very many small, some long.
  - Gram-positive organisms more numerous.
    - Cocci: Very rare small coccus.
    - Bacilli: Rather numerous small bacilli, some beaded bacilli.

1908.

Nov. 30. Stool, gas production 27.1 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, rare streptococcus.
    - Bacilli: Chiefly small bacilli, rare short thick bacillus.
  - Gram-positive organisms.
    - Cocci: Very rare small coccus.
    - Bacilli: Very rare small bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Numerous small cocci, few small diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms.
    - Cocci: Very rare small coccus.
    - Bacilli: Small rare bacillus.

Dec. 7. Stool, gas production 12.3 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Occasional small and large coccus and diplococcus, rare streptococcus.
    - Bacilli: Few small.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly small cocci, few small diplococci.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Rare small bacillus.

Dec. 14. Stool, gas production 20.2 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms very few.
    - Cocci: Very rare small coccus, occasional small diplococcus.
    - Bacilli: Very few small and large bacilli.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Chiefly staphylococci.
    - Bacilli: Chiefly small, few long.
  - Gram-positive organisms considerably increased in number.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Very many beaded.

1909.

Jan. 11. Stool, gas production 9.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Few small.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Chiefly staphylococci, numerous small cocci, few streptococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms considerably increased in number.
Cocci: Rather numerous small cocci, few small diplococci, rather numerous streptococci.

Jan. 18. Stool, gas production 20.5 per cent.
Gram stain from fecal emulsion.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Small and large cocci, few small diplococci, many large diplococci, few streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms:
Cocci: Occasional small coccus and diplococcus.
Bacilli: Occasional small bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Same forms as in stain from fecal emulsion, few staphylococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms considerably increased.
Cocci: Numerous small and large cocci and diplococci, rare streptococcus.
Bacilli: Few thick short.

Jan. 25. Stool, gas production 41.5 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, rare staphylococcus.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Few small cocci, few small and large diplococci.
Bacilli: Few short thick.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, some staphylococcus, numerous streptococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms more numerous.
Cocci: Rare small coccus and streptococcus.
Bacilli: Rather short thick.

1909.

Feb. 1. Stool, gas production 24.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few staphylococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Very rare small coccus, large diplococcus.

Bacilli: Small bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Same forms as in stain from fecal emulsion with very many staphylococci and numerous streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms very numerous.

Cocci: Rare small coccus and diplococcus, rare streptococcus.

Bacilli: Few small bacilli, very many large, few beaded.

Feb. 8. Stool, gas production 34.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare staphylococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms very numerous.

Cocci: Very many small cocci, few large diplococci.

Bacilli: Occasional small and short thick bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-positive organisms nearly as numerous as gram-negative.

Gram-negative organisms:

Cocci: Small and large, few small diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms same forms as in stain from fecal emulsion.

Cocci: Considerable diminution in cocci forms.

Bacilli: Marked increase in number of short thick bacilli.

Feb. 14. Stool, gas production 55.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small, few large cocci and diplococci.

Bacilli: Very many small, some long.

Gram-positive organisms few.

Cocci: Rare small coccus, few streptococci.

Bacilli: Rare small bacillus, rare beaded bacillus.

1909.

Feb. 22. Stool, gas production 34.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Few small cocci and diplococci, few large diplococci.

Bacilli: Occasional small bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Same forms present as in fecal emulsion with many streptococci, many staphylococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms considerably increased in number.

Cocci: Few small cocci, few large diplococci, many streptococci.

Bacilli: Numerous small and medium bacilli.

Mar. 1. Stool, gas production 35.7 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few short thick.

Gram-positive organisms.

Cocci: Very rare small coccus.

Bacilli: Short thick bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, numerous staphylococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms about the same as in the stain from fecal emulsion.

Mar. 9. Stool, gas production 30.3 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, few thick.

Gram-positive organisms very few.

Cocci: Rare small coccus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Slight increase in number of small bacilli.

1909.
Mar. 15. Stool, gas production 37 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Rare small bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms.
Cocci: Very rare small coccus.
Bacilli: Very rare small bacillus.

Subject 5.

1908.
Oct. 18. Stool, gas production 34.8 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Bacilli: Very rare small bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Very many small, many large thick bacilli, numerous large bacilli.
Gram-positive organisms.
Cocci: Rare small diplococcus.
Bacilli: Few beaded bacilli.
Oct. 29. Stool, gas production 31.7 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms few.
Cocci: Few small cocci and diplococci.
Bacilli: Few medium thick bacilli.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Chiefly small.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Cocci: Very rare small coccus.
Bacilli: Very many beaded.

1908.
Nov. 1. Stool, gas production 44.1 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus.
Bacilli: Medium bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small cocci, very many small diplococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms.
Bacilli: Very rare medium bacillus.

Nov. 8. Stool, gas production 30 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, numerous large.
Gram-positive organisms very few.
Cocci: Rare small coccus.
Bacilli: Short thick bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms considerably increased.
Bacilli: Very many medium bacilli, many yeast cells.

Nov. 15. Stool, gas production 17.6 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms rather numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Few small bacilli, rather numerous large bacilli.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, many staphylococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms more numerous. Same variety present as in stain from fecal emulsion.

1908.

Nov. 22. Stool, gas production 9.2 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms rather numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Numerous medium bacilli.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Chiefly small cocci and diplococci, few streptococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms less numerous. Same varieties present as in stain from fecal emulsion.

Nov. 30. Stool, gas production 14 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Rare small coccus and diplococcus.
Bacilli: Rare small bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms somewhat increased.
Cocci: Rare small coccus.
Bacilli: Numerous medium bacilli.

Dec. 7. Stool, gas production, 24.3 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms numerous.
Cocci: Few small cocci, small and large diplococci.
Bacilli: Rather numerous medium bacilli, few long.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: small and large cocci, few small diplococci, few streptococci and staphylococci.
Gram-positive organisms.
Cocci: Few small and large cocci and diplococci.
Bacilli: Numerous medium bacilli, few beaded.

1908.
Dec. 14. Stool, gas production, 17.4 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very rare.
Cocci: Rare small coccus.
Bacilli: Rare bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, few staphylococci.
Gram-positive organisms considerably increased.
Cocci: Rare small coccus.
Bacilli: Numerous small bacilli, very many beaded.

1909.
Jan. 4. Stool, gas production 13.8 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus and diplococcus.
Bacilli: Few small bacilli, rare medium bacillus.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, few staphylococci.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Bacilli: Few small bacilli, rare small bacillus.

Jan. 11. Stool, gas production 27.4 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus and diplococcus.
Bacilli: Rare small medium bacilli.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small cocci and diplococci, few streptococci.
Gram-positive organisms few.
Cocci: Rare small coccus and diplococcus, rare streptococcus.
Bacilli: Few small bacilli.

1909.

Jan. 18. Stool, gas production 24.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, occasional large coccus and diplococcus.

Bacilli: Chiefly small, occasional large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small bacillus.

Gram stain from fermentation tube.

Cocci: Chiefly staphylococci, few small cocci and diplococci and streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms slightly more numerous.

Cocci: Rare small coccus and diplococcus.

Bacilli: Medium small bacilli.

Jan. 25. Stool, gas production 40.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, rare large coccus and diplococcus.

Bacilli: Chiefly small, rare large.

Gram-positive organisms few.

Cocci: Few small cocci and diplococci, few small and medium bacilli.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms few.

Bacilli: Few small medium bacilli.

Feb. 1. Stool, gas production 42.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, rare streptococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Few medium bacilli, rare beaded bacillus.

Gram stain from fermentation tube.

Bacilli slightly more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, few staphylococci and streptococci.

Bacilli: Chiefly small, few long.

Gram-positive organisms slightly increased in number.

Bacilli: Rather numerous medium bacilli, rare beaded bacillus.

1909.

Feb. 8. Stool, gas production 36 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few long.
Gram-positive organisms.
Cocci: Very rare small coccus.
Bacilli: Rare bacillus.
Gram stain from fermentation tube.
Bacilli more numerous than cocci.
Gram-positive organisms nearly as numerous as gram-negative.
Gram-negative organisms.
Cocci: Few small cocci and diplococci, rare staphylococcus.
Bacilli: Chiefly small, some long.
Gram-positive organisms.
Cocci: Few small cocci and diplococci.
Bacilli: Very many medium.

Feb. 14. Stool, gas production 36 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms.
Cocci: Rare small coccus and diplococcus.
Bacilli: Rare small bacillus.
Gram stain from fermentation tube.
Cocci more numerous than bacilli.
Gram-negative organisms predominate.
Cocci: Chiefly streptococci and staphylococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms.
Bacilli: Very rare small bacillus.

Feb. 22. Stool, gas production 25.3 per cent.
Gram stain from fecal emulsion.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few streptococci.
Bacilli: Chiefly small, few large.
Gram-positive organisms very few.
Cocci: Small cocci and diplococci.
Bacilli: Small.
Gram stain from fermentation tube.
Bacilli and cocci in about equal numbers.
Gram-negative organisms predominate.
Cocci: Small and large cocci and diplococci, few staphylococci.
Bacilli: Chiefly small, many long.
Gram-positive organisms rather numerous.
Cocci: Few small cocci and diplococci.
Bacilli: Very many large bacilli, rare beaded bacillus.

1909.

Mar. 1. Stool, gas production, 35.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus and diplococcus.

Bacilli: Few medium bacilli, rare small and rare long bacillus.

Gram stain from fermentation tube.

Bacilli more numerous than cocci.

Gram-negative organisms predominate.

Cocci: Chiefly staphylococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Few medium bacilli, rare long bacillus.

Mar. 4. Stool, gas production, 35.4 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, rare large coccus and diplococcus.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small coccus.

Bacilli: Rare medium bacillus, rare short thick bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms.

Cocci: Rare small coccus.

Bacilli: Very many medium bacilli.

Mar. 15. Stool, gas production 34.2 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Bacilli: Very rare small bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-positive organisms about as numerous as gram-negative.

Gram-negative organisms.

Cocci: Small cocci and diplococci, few staphylococci, rare streptococcus.

Bacilli: Chiefly small, few long.

Gram-positive organisms very much increased in number.

Cocci: Very numerous cocci and diplococci.

Bacilli: Very many medium bacilli.

Subject 6.

1908.

Oct. 18. Stool, gas production 18.5 per cent.
 Gram stain from fecal emulsion.
  Bacilli and cocci in about equal numbers.
  Gram-negative organisms predominate.
   Cocci: Small and large cocci and diplococci.
   Bacilli: Chiefly small, few large.
  Gram-positive organisms few.
   Cocci: Few small cocci and diplococci, few large diplococci.
   Bacilli: Few small and medium bacilli, rare long bacillus.
 Gram stain from fermentation tube.
  Bacilli more numerous than cocci.
  Gram-negative organisms predominate.
   Cocci: Small cocci and diplococci, few staphylococci.
   Bacilli: Very many small bacilli, numerous long.
  Gram-positive organisms considerably increased.
   Cocci: Few small cocci and diplococci.
   Bacilli: Few medium bacilli, very many beaded, many yeast cells.

Oct. 29. Stool, gas production 51 per cent.
 Gram stain from fecal emulsion.
  Bacilli and cocci in about equal numbers.
  Gram-negative organisms predominate.
   Cocci: Small and large cocci and diplococci.
   Bacilli: Chiefly small, few large.
  Gram-positive organisms very few.
   Cocci: Rare small coccus
   Bacilli: Rare small bacillus.
 Gram stain from fermentation tube.
  Bacilli and cocci in about equal numbers.
  Gram-negative organisms predominate.
   Cocci: Small cocci and diplococci, few streptococci.
   Bacilli: Chiefly small, some long.
  Gram-positive organisms considerably increased.
   Cocci: Occasional small coccus.
   Bacilli: Many beaded bacilli.

Nov. 1. Stool, gas production 34.8 per cent.
 Gram stain from fecal emulsion.
  Bacilli and cocci in about equal numbers.
  Gram-negative organisms predominate.
   Cocci: Small and large cocci and diplococci.
   Bacilli: Chiefly small, few large.
  Gram-positive organisms rather numerous
   Cocci: Numerous small cocci and diplococci.
   Bacilli: Few medium bacilli.
 Gram stain from fermentation tube.
  Bacilli and cocci in about equal numbers.
  Gram-negative organisms predominate.
   Cocci: Small cocci and diplococci, few staphylococci and streptococci.
   Bacilli: Chiefly small, few large.
  Gram-positive organisms.
   Cocci: Rare small coccus and diplococcus.
   Bacilli: Rare small bacillus, many beaded bacilli.

1908.

Nov. 8. Stool, gas production 23.8 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Few short thick bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, rare streptococcus, and staphylococcus.
    - Bacilli: Chiefly small, some long.
  - Gram-positive organisms numerous.
    - Bacilli: Occasional short thick bacillus, many beaded bacilli, many yeast cells.

Nov. 15. Stool, gas production 55.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Few medium bacilli.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci.
    - Bacilli: Very many small and long.
  - Gram-positive organisms rare.
    - Bacilli: Few beaded bacilli, rare yeast cell.

Nov. 22. Stool, gas production 35.8 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Few small bacilli.
- Gram stain from fermentation tube.
  - Bacilli more numerous than cocci.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, chains of diplococci.
    - Bacilli: Chiefly small, many long, some beaded.
  - Gram-positive organisms.
    - Bacilli: Rare medium bacillus, rare beaded bacillus.

1908.

Nov. 30. Stool, gas production 34.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms.

Cocci: Rare small coccus and diplococcus.

Bacilli: Rare small bacillus, few medium bacilli.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, few streptococci.

Bacilli: Chiefly small, some long.

Gram-positive organisms few.

Bacilli: Rare small bacillus.

1909.

Jan. 4. Stool, gas production 40.9 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Bacilli: Rare small medium bacillus.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small cocci, diplococci, many staphylococci, few streptococci.

Gram-positive organisms considerably increased.

Bacilli: Numerous medium bacilli.

Jan. 11. Stool, gas production 28.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare coccus and diplococcus.

Bacilli: Rare medium bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Small cocci and diplococci, very many staphylococci, few streptococci.

Gram-positive organisms considerably increased.

Cocci: Many small cocciand diplo cocci, few streptococci.

Bacilli: Few medium bacilli.

1909.

Jan. 18. Stool, gas production 23.6 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large and few long.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Medium bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, rare streptococcus.
    - Bacilli: Chiefly small, many long.
  - Gram-positive organisms.
    - Cocci: Occasional small coccus and diplococcus.

Jan. 25. Stool, gas production 50 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms very few.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Few small and medium bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few staphylococci.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and streptococcus.
    - Bacilli: Rare small medium bacillus.

Feb. 1. Stool, gas production 33.8 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Few medium and large bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few staphylococci and streptococci.
  - Gram-positive organisms.
    - Bacilli: Very rare small bacillus.

1909.

Feb. 8. Stool, gas production 25 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Very rare small coccus.
    - Bacilli: Medium bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few streptococci.
  - Gram-positive organisms increased in number.
    - Cocci: Rather small coccus and diplococcus.
    - Bacilli: Few small bacilli.

Feb. 14. Stool, gas production 23.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci, rare streptococcus.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Medium bacillus.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few staphylococci and streptococci.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Few medium bacilli.

Feb. 22. Stool, gas production 25.9 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Few medium bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few staphylococci and streptococci.
    - Bacilli: Chiefly small, numerous large, many long.
  - Gram-positive organisms considerably increased.
    - Cocci: Very many small cocci and diplococci.
    - Bacilli: Very many medium bacilli.

1909.

Mar. 1. Stool, gas production 47.6 per cent.
  Gram stain from fecal emulsion.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small and large cocci and diplococci.
      Bacilli: Chiefly small, few large.
    Gram-positive organisms few.
      Cocci: Rare small coccus and diplococcus.
      Bacilli: Rare small bacillus.
  Gram stain from fermentation tube.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small cocci and diplococci, few streptococci, rare staphylococci.
    Gram-positive organisms.
      Cocci: Very many small cocci and diplococci, rare streptococcus.
      Bacilli: Few medium bacilli, rare beaded bacillus.

Mar. 9. Stool, gas production 29.2 per cent.
  Gram stain from fecal emulsion.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small and large cocci and diplococci, rare streptococcus.
      Bacilli: Chiefly small, few large.
    Gram-positive organisms few.
      Cocci: Rare small coccus.
      Bacilli: Rare medium bacillus, rare beaded bacillus.
  Gram stain from fermentation tube.
    Cocci more numerous than bacilli.
    Gram-negative organisms predominate.
      Cocci: Small cocci and diplococci, very many staphylococci, few streptococci.
      Bacilli: Chiefly small, few large.
    Gram-positive organisms.
      Cocci: Very rare small coccus and diplococcus.

Mar. 15. Stool, gas production 48.5 per cent.
  Gram stain from fecal emulsion.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small and large cocci and diplococci.
      Bacilli: Chiefly small, few large.
    Gram-positive organisms few.
      Cocci: Rare small coccus and diplococcus.
      Bacilli: Few medium bacilli.
  Gram stain from fermentation tube.
    Bacilli more numerous than cocci.
    Gram-negative organisms predominate.
      Cocci: Small cocci and diplococci, rare staphylococcus and streptococcus.
      Bacilli: Very many small, numerous long.
    Gram-positive organisms considerably increased.
      Cocci: Few small cocci and diplococci.
      Bacilli: Numerous medium bacilli, very many beaded bacilli.

Subject 7.

1908.

Oct. 20. Stool, gas production 26.1 per cent.
  Gram stain from fecal emulsion.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small and large cocci, and diplococci.
      Bacilli: Chiefly small, few large.
    Gram-positive organisms.
      Cocci: Rare small coccus and diplococcus.
      Bacilli: Few small and medium bacilli.
  Gram stain from fermentation tube.
    Bacilli more numerous than cocci.
    Gram-negative organisms predominate.
      Cocci: Small cocci and diplococci, few streptococci and staphylococci.
      Bacilli: Chiefly small, some long.
    Gram-positive organisms decreased.
      Bacilli: Very rare small bacillus.

Nov. 2. Stool, gas production 56.1 per cent.
  Gram stain from fecal emulsion.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small and large cocci and diplococci, few streptococci.
      Bacilli: Chiefly small, few long.
    Gram-positive organisms numerous.
      Cocci: Rare small coccus and diplococcus.
      Bacilli: Few small bacilli, many medium.
  Gram stain from fermentation tube.
    Bacilli and cocci in about equal numbers.
    Gram-positive organisms nearly as numerous as gram-negative.
    Gram-negative organisms.
      Cocci: Small cocci and diplococci, many streptococci, few staphylococci.
    Gram-positive organisms markedly increased.
      Cocci: Many small cocci and diplococci.
      Bacilli: Numerous short, thick, and medium bacilli.

Nov. 8. Stool, gas production 49.6 per cent.
  Gram stain from fecal emulsion.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small and large cocci and diplococci.
      Bacilli: Chiefly small, few large.
    Gram-positive organisms.
      Cocci: Very rare small coccus.
      Bacilli: Small and medium bacillus.
  Gram stain from fermentation tube.
    Bacilli and cocci in about equal numbers.
    Gram-negative organisms predominate.
      Cocci: Small cocci and diplococci, few streptococci and staphylococci.
    Gram-positive organisms decreased.
      Bacilli: Rare small bacillus, few yeast cells.

1908.

Nov. 15. Stool, gas production 37.1 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Few medium bacilli.
- Gram stain from fermentation tube.
  - Cocci more numerous than bacilli.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, streptococci and staphylococci.
  - Gram-positive organisms.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Rare small bacillus, few yeast cells.

Nov. 22. Stool, gas production 37.1 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus and diplococcus.
    - Bacilli: Rare small, few medium, few long.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few streptococci.
    - Bacilli: Chiefly small, many long.
  - Gram-positive organisms considerably increased.
    - Cocci: Few small cocci and diplococci, few streptococci.
    - Bacilli: Many small and medium and long bacilli, few beaded.

Nov. 30. Stool, gas production 30.5 per cent.
- Gram stain from fecal emulsion.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small and large cocci and diplococci.
    - Bacilli: Chiefly small, few large.
  - Gram-positive organisms few.
    - Cocci: Rare small coccus.
    - Bacilli: Rare small bacillus, few medium bacilli.
- Gram stain from fermentation tube.
  - Bacilli and cocci in about equal numbers.
  - Gram-negative organisms predominate.
    - Cocci: Small cocci and diplococci, few streptococci, rare staphylococci.
    - Bacilli: Chiefly small, many long, few thick.
  - Gram-positive organisms increased considerably.
    - Cocci: Few small cocci and diplococci.
    - Bacilli: Rare small bacillus, many medium bacilli, many long bacilli.

1909.

Dec. 7. Stool, gas production 26.1 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms rather numerous.

Cocci: Rare small coccus and diplococcus.

Bacilli: Short thick.

Gram stain from fermentation tube.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci, some streptococci and staphylococci.

Bacilli: Chiefly small.

Gram-positive organisms somewhat less numerous.

Cocci: Rare small coccus.

Bacilli: Few medium thick bacilli.

Dec. 14. Stool, gas production 21.8 per cent.

Gram stain from fecal emulsion.

Bacilli and cocci in about equal numbers.

Gram-negative organisms predominate.

Cocci: Small and large cocci and diplococci.

Bacilli: Chiefly small, few large.

Gram-positive organisms few.

Cocci: Rare small cocci.

Bacilli: Occasional small bacillus.

Gram stain from fermentation tube.

Cocci more numerous than bacilli.

Gram-negative organisms predominate.

Cocci: Chiefly small cocci and diplococci, few streptococci and staphylococci.

Gram-positive organisms more numerous.

Bacilli: Numerous.

GAS PRODUCTION.

CONTROL A.

Date.	Length of tube.	Gas.		Date.	Length of tube.	Gas.		Date.	Length of tube.	Gas.	
		Amount.	Per cent.			Amount.	Per cent.			Amount.	Per cent.
	Mm.	*Mm.*			*Mm.*	*Mm.*			*Mm.*	*Mm.*	
Oct. 20	144	48	33.3	Dec. 14	132	38	28.8	Feb. 22	131	55	41.9
29	.....	.....	.....	Jan. 4	.....	.....	.....	Mar. 2	135	38	28.1
Nov. 1	150	60	40.0	11	135	50	37.0	9	132	37	28.0
8	142	20	14.1	18	130	65	50.0	15	142	47	33.0
15	142	47	33.1	25	138	30	21.7				
22	136	31	21.0	Feb. 1	132	50	37.8	Average, 18 specimens			27.85
30	135	16	11.0	8	142	36	25.3				
Dec. 7	136	1	.7	14	137	23	16.8				

Gas production—Continued.

CONTROL B.

Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.
	Mm.	*Mm.*			*Mm.*	*Mm.*			*Mm.*	*Mm.*	
Oct. 20	.....	.....	.....	Dec. 14	143	45	31.4	Feb. 22	131	28	21.3
29	.....	.....	.....	Jan. 4	130	77	59.2	Mar. 2	140	45	32.1
Nov. 1	150	75	50.0	11	140	53	37.8	9	132	38	21.2
8	133	43	32.3	18	140	57	40.7	15	135	33	24.4
15	135	56	41.4	25	143	46	32.1	Average, 18 specimens			38.30
22	133	76	56.9	Feb. 1	130	51	39.2				
30	135	72	53.3	8	140	59	42.1				
Dec. 7	141	66	46.8	14	131	36	27.4				

CONTROL C.

Oct. 20	150	34	22.6	Dec. 14	143	31	21.5	Feb. 22	140	44	31.4
29	148	72	48.6	Jan. 4	140	50	35.7	Mar. 2	143	38	26.5
Nov. 1	150	38	25.3	11	140	51	36.5	9	140	50	35.7
8	142	7	4.9	18	136	40	29.0	15	130	51	39.2
15	142	47	33.0	25	140	58	41.5	Average, 20 specimens			30.64
22	131	54	41.2	Feb. 1	138	47	34.0				
30	139	26	18.4	8	140	44	31.4				
Dec. 7	134	36	26.8	14	132	39	29.5				

CONTROL D.

Oct. 20	.....	.....	.....	Dec. 14	138	33	23.9	Feb. 22	132	7	53.0
29	145	45	31.0	Jan. 4	140	52	37.1	Mar. 2	132	35	26.5
Nov. 1	150	58	38.6	11	132	53	40.1	9	134	34	25.3
8	143	32	22.2	18	143	53	37.0	15	132	63	47.7
15	140	60	42.8	25	140	53	37.8	Average, 19 specimens			32.91
22	137	63	46.0	Feb. 1	132	27	20.4				
30	143	25	17.4	8	142	54	38.0				
Dec. 7	139	29	20.8	14	131	26	19.8				

CONTROL E.

Oct. 20	150	50	33.3	Dec. 14	.....	.....	.....	Feb. 22	136	28	20.6
29	.....	.....	.....	Jan. 4	.....	.....	.....	Mar. 2	132	67	50.7
Nov. 1	150	60	40.0	11	132	18	13.6	9	135	32	23.7
8	139	25	18.0	18	132	49	37.1	15	130	65	50.0
15	142	29	20.4	25	140	15	10.7	Average, 17 specimens			26.44
22	139	2	1.4	Feb. 1	132	50	37.8				
30	130	34	26.1	8	142	37	26.0				
Dec. 7	132	37	28.0	14	131	16	12.2				

SUBJECT 1.

Oct. 20	148	28	18.9	Dec. 14	139	35	25.1	Feb. 22	138	40	29.0
29	150	35	23.3	Jan. 4	.....	.....	.....	Mar. 2	143	39	27.2
Nov. 1	145	61	42.6	11	142	44	30.9	9	142	36	24.6
8	139	18	12.9	18	137	52	37.9	15	133	34	25.5
15	134	19	14.1	25	140	47	33.5	Average, 19 specimens			24.50
22	134	20	14.9	Feb. 1	134	34	25.4				
30	139	8	5.7	8	142	4.8	23.7				
Dec. 7	131	1	.7	14	132	65	49.2				

SUBJECT 2.

Oct. 20	145	45	31.0	Dec. 14	140	24	17.1	Feb. 22	130	41	31.5
29	150	62	40.1	Jan. 4	132	26	19.2	Mar. 2	133	30	22.5
Nov. 1	140	41	29.2	11	143	68	47.5	9	132	43	32.5
8	139	49	25.2	18	132	33	24.8	15	133	51	38.3
15	137	50	36.5	25	137	40	29.2	Average, 20 specimens			29.66
22	132	3	22.7	Feb. 1	136	35	25.7				
30	132	32	24.2	8	142	42	29.5				
Dec. 7	137	42	30.6	14	135	54	39.9				

Gas production—Continued.

SUBJECT 3.

Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.
	Mm.	*Mm.*			*Mm.*	*Mm.*			*Mm.*	*Mm.*	
Oct. 20	151	50	33.1	Dec. 14	130	38	29.2	Feb. 22	......	......	......
29	......	......	......	Jan. 4	137	47	34.3	Mar. 2	......	......	......
Nov. 1	140	72	58.5	11	143	40	27.9	9	......	......	......
8	135	29	21.4	18	137	103	75.1	15	......	......	......
15	143	61	42.6	25	132	47	35.6				
22	133	17	12.7	Feb. 1	......	......	......	Average, 14 specimens			34.47
30	135	0	0	8	142	44	30.9				
Dec. 7	135	42	31.1	14	137	69	50.3				

SUBJECT 4.

Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.
Oct. 20	......	......	......	Dec. 14	143	29	20.2	Feb. 22	137	47	34.3
29	......	......	......	Jan. 4	143	15	10.5	Mar. 2	140	50	35.7
Nov. 1	135	34	25.1	11	140	13	9.2	9	132	41	30.3
8	......	......	......	18	132	33	25.0	15	133	49	37.0
15	143	68	47.5	25	140	58	41.5				
22	135	47	34.8	Feb. 1	132	32	24.2	Average, 17 specimens			29.66
30	135	38	27.1	8	137	47	34.3				
Dec. 7	138	17	12.3	14	137	76	55.4				

SUBJECT 5.

Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.
Oct. 20	152	53	34.8	Dec. 7	131	32	24.3	Feb. 8	133	48	36.0
29	148	48	31.7	14	143	25	17.4	22	134	34	25.3
Nov. 1	136	60	44.1	Jan. 4	130	18	13.8	Mar. 2	142	51	35.9
8	143	43	30.0	11	142	39	27.4	15	140	48	34.2
15	136	24	17.6	18	133	33	24.8				
22	130	12	9.2	25	132	54	40.9	Average, 20 specimens			28.74
30	142	20	14.0	Feb. 1	133	56	42.1				

SUBJECT 6.

Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.
Oct. 20	151	28	18.5	Dec. 7	......	......	......	Feb. 8	140	33	23.5
29	145	74	51.0	14	......	......	......	22	135	33	25.9
Nov. 1	135	47	34.8	Jan. 4	137	56	40.9	Mar. 2	130	38	29.2
8	136	46	23.8	11	140	40	28.8	15	140	68	48.5
15	135	75	55.5	18	131	31	23.6				
22	134	48	35.8	25	130	65	50.0	Average, 18 specimens			35.55
30	132	46	34.8	Feb. 1	133	45	33.8				

SUBJECT 7.

Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.	Date.	Length of tube.	Gas. Amount.	Gas. Per cent.
Oct. 20	149	39	26.1	Nov. 15	140	52	37.1	Dec. 14	142	31	21.8
29	......	......	......	22	132	49	37.1				
Nov. 1	132	74	56.1	30	144	41	30.5	Average, 8 specimens			35.55
8	139	69	49.6	Dec. 7	130	34	26.1				

AVERAGE GAS PRODUCTION ENTIRE PERIOD.	Per cent gas.
7 saccharin men (116 specimens)	31.09
5 nonsaccharin men (87 specimens)	31.22

ANALYTICAL TABLE IN FULL.

Control A.

Date.	Urine.																									Feces.				
	Volume.	Specific gravity.	Urine nitrogen.											Chlorides as Cl.	Urine sulphur.							Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	Feces N / Urine N.	Feces fat / Feces N.
			Total (N_2).[1]	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen.						Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur.										
									Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.						Inorganic.	Ethereal.	Neutral.								
	c. c.		Gms.	Gms.	Gm.	Gm.	Gm.	Gms.	P. c.	P. c.	P. c.	P. c.	P. c.	Gms.	Gms.	Gm.	Gm.	Gm.	P. c.	P. c.	P. c.		Gms.		Gms.	Gms.	Gms.		
Oct. 20	1.600	1.017	11.26	9.24	0.43	0.55	0.17	0.87	82.06	3.81	4.88	1.51	7.72	5.18	0.79	0.60	0.03	0.16	75.94	3.80	20.25	314	1.09	20					
21	1.220	1.020	11.10	8.82	.42	.60	.18	1.08	79.46	3.78	5.41	1.62	9.73	4.50	.79	.59	.06	.14	74.68	7.59	17.72	276	1.18	71	28.20	1.44	6.27	0.04	4.35
22	1.400	1.020	12.69	9.82	.41	.56	.19	1.71	77.38	3.23	4.41	1.49	13.98	5.04	1.00	.68	.06	.26	68.00	6.00	26.00	291	1.06	62					
Av....	1.407	1.019	11.68	9.29	.42	.57	.18	1.22	79.63	3.61	4.90	1.54	10.48	4.91	.86	.62	.05	.19	72.87	5.79	21.32	294	1.11	51	9.40	.48	2.09	.04	4.35
Oct. 23	1.360	1.023	12.84	10.41	.39	.55	.18	1.31	81.07	3.03	4.28	1.40	10.20	6.26	.93	.71	.06	.15	76.34	6.45	16.12	218	.94	33					
24	1.475	1.025	15.06	11.83	.35	.64	.21	2.03	78.53	2.33	4.25	1.39	13.48	7.34	1.09	.85	.06	.18	77.98	5.50	16.51	279	1.15	100					
25	1.770	1.017	11.04	9.09	.34	.53	.16	.92	82.34	3.08	4.80	1.44	8.33	5.41	.73	.55	.04	.13	75.35	5.48	17.80	187	.79	29					
26	1,030	1,026	12 06	10.24	.46	.54	.16	.66	84.89	3.81	4.48	1.33	5.47	4.05	1.05	.79	.08	.18	75.24	7.62	17.14	336	.95	100	56.40	2.88	12.54	.03	4.35
27	1.125	1.022	11.04	8.70	.42	.56	.18	1.18	78.81	3.80	5.07	1.63	10.66	5.17	.86	.60	.06	.19	69.76	6.97	22.09	333	.95	87					
28	1.435	1.022	12.93	10.61	.49	.66	.16	1.01	82.05	3.79	5.11	1.21	7.81	6.97	.89	.65	.08	.16	73.04	8.99	17.98	345	1.14	143					
29	1.780	1.018	13.33	10.88	.46	.67	.20	1.12	81.62	3.45	5.03	1.50	8.33	8.22	.94	.62	.09	.24	65.79	9.57	25.53	345	1.14	50					
30	1,340	1.024	11.79	9.85	.44	.56	.16	.78	83.54	3.73	4.75	1.36	6.61	7.11	.96	.70	.08	.17	72.93	8.33	17.70	264	.93	71	155.50	8.48	43.28	.16	5.10
Oct. 31 / Nov. 1	3.430	1.020	13.82	11.11	.53	.61	.19	1.38	80.39	3.83	4.41	1.34	9.98	6.79	.97	.71	.09	.17	73.19	9.28	17.52	353	1.18	14					
Av....	1.475	1.022	12.65	10.30	.43	.59	.18	1.15	81.47	3.43	4.68	1.40	8.98	6.37	.96	.68	.07	.17	73.29	7.57	18.71	295	1.02	69	21.19	1.14	5.58	.10	4.72
Nov. 2	1.015	1.029	13.53	11.06	.52	.59	.18	1.18	81.73	3.84	4.36	1.33	8.72	5.76	1.07	.77	.07	.22	71.96	6.54	20.56	441	1.01	91					
3	1.025	1.028	13.85	11.26	.38	.71	.18	1.32	81.30	2.74	5.13	1.30	9.50	5.58	.94	.69	.11	.14	73.40	11.80	14.89	291	1.00	143					
4	1.335	1.027	15.66	12.90	.51	.63	.21	1.41	82.37	3.26	4.02	1.34	9.01	6.62	1.23	.80	.09	.34	65.01	7.32	27.64	327	1.15	111					
5	1.570	1.023	14.91	11.90	.53	.63	.21	1.64	79.81	3.55	4.23	1.41	10.99	7.39	1.02	.73	.11	.18	71.56	10.88	17.64	315	1.08	138	195.50	10.85	30.50	.11	2.81
6	1.205	1.023	11.65	9.46	.38	.53	.14	1.14	81.19	3.26	4.55	1.20	9.79	7.16	.82	.57	.08	.17	69.51	9.75	20.73	213	.88	71					
7–8	2.160	1.028	13.44	11.01	.54	.59	.22	1.08	81.90	4.02	4.39	1.64	8.04	4.82	.96	.....	.....	.18	.....	.....	.....	363	1.06	.....					
Av....	1.187	1.026	13.84	11.26	.47	.61	.19	1.29	81.38	3.44	4.45	1.37	9.34	7.89	1.01	.71	.09	.20	70.2[illegible]	9.26	20.29	325	1.03	92	27.93	1.55	4.35	.11	2.81

Nov. 9	1,300	1.023	12.70	10.59	.48	.54	.16	.93	83.38	3.78	4.25	1.26	7.32	5.76	.99	.67	.07	.25	67.69	7.07	25.24	300	1.05	125					
10–11	3,420	1.020	13.92	11.64	.43	.64	.21	1.00	83.61	3.09	4.60	1.51	7.18	7.75	1.07	.64	.20	.23	59.81	18.70	21.50	263	1.03	42	147.50	8.50	32.00	.09	3.77
12–13	2,550	1.023	12.57	10.07	.52	.60	.18	1.20	80.11	4.14	4.77	1.43	9.55	7.15	.89	.66	.09	.15	74.15	10.11	16.86	435	1.07	182					
14–15	2,740	1.019	11.46	9.47	.43	.59	.18	.79	82.64	3.75	5.14	1.57	6.89	5.44	.83	.59	.06	.18	71.10	7.23	21.68	312	.95	83					
16–17	2,730	1.024	12.20	10.12	.50	.54	.19	.85	82.97	4.10	4.42	1.55	6.96	5.40	.94	.66	.09	.19	70.21	9.57	20.21	345	1.01	100					
18–19	2,890	1.020	12.21	9.86	.40	.55	.22	1.18	80.75	3.27	4.50	1.80	9.66	6.30	.91	.61	.07	.23	67.03	7.69	25.27	339	1.06	28	140.00	8.32	27.01	.13	3.25
20, 22	1,275	1.030	8.40	6.92	.34	.44	.13	.57	82.38	4.04	5.23	1.54	6.78	3.10	.67	.43	.07	.17	64.18	10.45	25.37	189	.67	14					
Av....	1,300	1.023	11.92	9.81	.44	.56	.18	.93	82.26	3.59	4.70	1.52	7.76	5.84	.90	.61	.09	.20	67.88	10.11	22.30	312	.98	82	22.11	1.29	4.54	.11	3.51
Nov. 23–24	2,210	1.025	12.60	10.35	.57	.59	.19	.90	82.14	4.52	4.68	1.50	7.14	5.85	.98	.69	.08	.21	70.41	8.16	21.42	324	1.08	33					
25, 27	2,340	1.025	10.68	8.75	.49	.54	.19	.71	81.93	4.58	5.05	1.78	6.64	6.25	.85	.60	.05	.20	70.59	5.88	23.53	222	.90	91	137.50	10.65	29.30	.14	2.75
28–29	2,690	1.022	12.63	10.29	.51	.58	.20	1.05	81.48	4.03	4.59	1.58	8.31	6.61	.87	.64	.05	.18	73.56	5.74	20.69	348	1.05	42					
Nov. 30, Dec. 1	2,125	1.026	11.75	10.07	.40	.51	.18	.59	85.71	3.40	4.34	1.53	5.02	4.64	.86	.62	.07	.17	72.10	8.14	19.76	279	.88	67					
2–3	3,285	1.020	10.31	8.31	.49	.49	.19	.83	80.60	4.75	4.75	1.84	8.06	7.41	.89	.64	.06	.19	72.00	6.75	21.25	345	.96	18	149.00	9.16	28.24	.11	3.08
4	1,320	1.026	12.81	10.72	.50	.60	.22	.77	83.70	3.90	4.68	1.72	6.00	6.34	.92	.66	.10	.16	71.80	10.80	17.40	411	1.12	29					
5–6	3,510	1.019	11.51	9.23	.56	.56	.20	.96	80.20	4.87	4.87	1.74	8.32	6.58	.82	.55	.06	.21	67.06	7.32	25.62	312	.98	17					
Av....	1,345	1.023	11.75	9.67	.50	.55	.19	.83	82.25	4.39	4.71	1.67	7.07	6.27	.88	.63	.07	.19	71.07	7.54	21.38	320	.99	42	22.04	1.52	4.42	.12	2.92
Dec. 7–8	1,995	1.030	12.87	10.79	.34	.59	.21	.94	83.84	2.64	4.58	1.63	7.31	5.13	1.03	.71	.06	.26	68.93	5.82	25.25	324	.97	42					
9–10	3,530	1.022	12.25	10.17	.42	.58	.23	.85	83.02	3.43	4.73	1.88	6.94	8.05	.98	.71	.05	.22	72.45	5.10	22.45	339	1.26	18					
11	1,545	1.037	13.07	10.74	.61	.66	.21	.86	82.12	4.66	5.05	1.60	6.57	2.55	1.02	.74	.05	.23	72.60	4.90	22.50	412	1.06	25	160.00	9.98	67.86	.11	6.80
12–13	2,450	1.026	11.79	9.46	.42	.48	.18	1.25	80.20	3.56	4.07	1.53	10.64	5.62	.83	.60	.06	.17	72.27	7.23	20.50	282	.94	14					
14–15	2,690	1.023	11.34	9.13	.38	.54	.18	1.11	80.50	3.35	4.76	1.59	9.80	6.66	.85	.60	.06	.19	70.55	7.05	22.40	288	1.01	14					
16–17	2,510	1.024	12.41	10.29	.42	.60	.18	.92	82.85	3.38	4.92	1.45	7.40	5.85	.94	.68	.06	.20	72.40	6.38	21.22	291	.96	22	81.50	4.81	20.30	.08	4.22
18	1,215	1.025	13.22	10.55	.46	.61	.19	1.41	79.80	3.48	4.61	1.45	10.66	5.44	1.00	.75	.05	.20	75.00	5.00	20.00	393	1.10	25					
Av....	1,328	1.027	12.42	10.16	.43	.58	.19	1.05	81.76	3.50	4.67	1.59	8.47	5.61	.95	.68	.06	.21	72.03	5.92	22.19	333	1.04	23	20.12	1.23	7.34	.09	5.51
Jan. 4–5	2,400	1.025	12.72	10.58	.46	.61	.16	.91	83.20	3.62	4.80	1.26	7.12	7.47	.87	.62	.12	.13	71.27	13.79	14.94	273	.88	125					
6–7	3,400	1.021	15.67	13.40	.50	.66	.24	.87	85.52	3.19	4.21	1.53	5.55	7.70	1.12	.83	.07	.22	74.11	6.25	19.64	326	1.03	100					
8	1,420	1.025	14.70	12.30	.57	.66	.25	.92	83.67	3.88	4.49	1.70	6.26	7.20	1.14	.90	.07	.17	78.95	6.14	14.91	408	1.06	63	115.00	6.58	25.14	.06	3.82
9–10	2,075	1.031	14.31	12.11	.48	.59	.25	.88	84.62	3.35	4.12	1.75	6.15	6.49	.87	.72	.05	.10	82.75	5.75	11.50	336	1.03	55					
11–12	3,090	1.024	13.84	11.66	.45	.62	.22	.89	84.25	3.25	4.48	1.59	6.43	8.34	1.01	.80	.04	.17	79.21	3.96	16.83	287	1.02	215					
13–14	2,750	1.025	12.45	10.31	.43	.61	.21	.89	82.80	3.45	4.90	1.68	7.17	7.78	.93	.68	.06	.19	73.12	6.45	20.43	312	1.00	143					
15	1,400	1.026	15.27	13.13	.43	.59	.23	.89	86.00	2.82	3.85	1.51	5.82	7.70	1.12	.83	.09	.20	74.10	8.04	17.86	351	1.14	62	186.00	11.32	38.06	.12	3.36
16–17	2,450	1.027	12.09	9.79	.38	.55	.19	1.18	80.98	3.14	4.55	1.57	9.76	6.48	.88	.62	.07	.19	70.45	7.95	21.60	297	1.06	167					
Av....	1,356	1.026	13.88	11.66	.46	.61	.22	.95	83.88	3.34	4.43	1.69	6.78	7.39	.99	.75	.07	.17	75.49	7.29	17.21	325	1.03	116	21.50	1.28	4.51	.09	3.59

[1] Attention is called to the fact that in this Analytical Table the figures given are grams per day, except for the volume of urine, where two days are indicated. The figures for feces are the totals for the periods indicated.

Analytical table in full—Continued.

Control A—Continued.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Jan. 18–19	2,870	1,024	11.61	9.71	0.37	0.56	0.19	0.78	83.64	3.19	4.81	1.64	6.72	7.47	0.92	0.65	0.05	0.22	70.63	5.44	23.93	276	1.06	143					
20–21	2,590	1.026	12.66	10.34	.38	.67	.21	1.06	81.69	3.00	5.29	1.65	8.37	6.52	.96	.73	.06	.17	76.05	6.25	17.70	321	1.04	125					
22	825	1.034	12.69	10.79	.28	.66	.21	.75	85.00	2.91	5.21	1.65	5.93	4.27	.94	.72	.05	.17	76.60	5.30	18.10	339	1.01	19	168.00	10.51	33.40	0.12	3.18
23–24	2,200	1.026	12.30	9.86	.37	.51	.21	1.35	80.20	3.01	4.15	1.70	10.94	4.68	.84	.51	.13	.20	60.72	15.52	23.76	315	1.04	100					
25–26	2,740	1.024	10.41	8.29	.41	.54	.20	.97	79.64	3.94	5.18	1.92	9.32	8.24	.73	.50	.10	.13	68.50	13.70	17.80	150	.77	100					
27–28	2,650	1.023	11.58	9.40	.41	.59	.19	.99	81.20	3.53	5.10	1.63	8.54	6.96	.81	.64	.03	.14	79.00	3.70	17.30	321	.97	63	200.50	12.05	36.80	.14	3.05
29	1,165	1.024	10.86	8.97	.36	.50	.19	.84	82.60	3.31	4.60	1.75	7.74	5.98	.82	.63	.05	.14	76.80	6.10	17.10	381	1.11	50					
30–31	2,650	1.024	13.13	10.84	.38	.60	.19	1.12	82.55	2.90	4.57	1.45	8.53	6.07	.85	.62	.05	.18	73.00	5.88	21.12	297	1.01	77					
Av....	1,264	1.026	11.91	9.78	.37	.58	.19	.98	82.07	3.23	4.86	1.69	8.26	6.27	.86	.63	.07	.17	72.41	7.74	19.73	300	1.00	85	26.32	1.61	5.01	.13	3.11
Feb. 1–2	1,700	1.031	11.55	9.41	.37	.59	.15	1.03	81.48	3.20	5.10	1.30	8.92	4.01	.89	.69	.04	.16	77.50	4.50	18.00	318	.90	63					
3–4	2,500	1.026	12.38	10.43	.43	.63	.19	.70	84.25	3.47	5.09	1.53	5.66	6.75	.94	.67	.05	.22	71.30	5.30	23.40	300	.97	50	116.00	5.62	21.51	.06	3.84
5	1,310	1.026	12.57	10.46	.37	.63	.19	.92	83.22	2.95	5.00	1.51	7.32	7.78	.99	.74	.06	.19	74.74	6.06	19.20	315	.94	50					
6–7	2,300	1.029	12.18	10.26	.30	.52	.19	.91	84.24	2.46	4.27	1.56	7.47	7.25	.87	.64	.07	.16	73.55	8.05	18.40	276	1.01	77					
Av....	1,116	1.028	12.17	10.14	.37	.59	.18	.89	83.29	3.02	4.86	1.48	7.34	6.25	.92	.68	.05	.18	74.27	5.98	19.75	302	.95	60	16.57	.80	3.07	.06	3.84
Feb. 8	1,100	1.016	7.77	6.04	.37	.52	.13	.71	77.70	4.76	6.71	1.67	9.16	2.97	.51	.31	.04	.16	60.80	7.84	31.36	285	.72	25					
9	1,660	1.015	6.71	4.64	.51	.62	.15	.79	69.15	7.60	9.24	2.24	11.77	5.88	.49	.27	.04	.18	55.10	8.17	36.73	239	.65	25					
10	1,520	1.015	5.50	3.15	.41	.55	.12	1.27	57.26	7.46	10.00	2.18	23.10	4.83	.38	.19	.05	.14	50.00	13.15	36.85	182	.55	50					
11	1,795	1,013	4.99	3.15	.41	.50	.13	.80	63.15	8.22	10.01	2.61	16.01	4.36	.38	.19	.05	.14	50.00	13.15	36.85	180	.58	25	155.50	10.73	30.71	.27	2.86
12	760	1.020	4.10	2.57	.33	.53	.11	.56	62.58	8.05	12.93	2.68	13.66	2.83	.35	.18	.05	.12	51.40	14.30	34.30	187	.48	9					
13	1,190	1.017	5.34	3.12	.33	.60	.12	1.17	58.40	6.18	11.25	2.25	21.92	4.86	.34	.17	.04	.13	50.00	11.78	38.22	195	.61	31					
14	2,110	1.012	4.70	3.08	.38	.52	.12	.60	65.50	8.10	11.05	2.57	12.78	6.02	.40	.18	.04	.18	45.00	10.00	45.00	177	.62	62					
Av....	1,591	1.015	5.59	3.68	.39	.55	.13	.84	64.82	7.19	10.17	2.31	15.49	4.54	.41	.21	.04	.15	51.76	11.19	37.04	206	.60	32	22.21	1.53	4.38	.27	2.86

Feb.15-16	1,800	1.031	9.69	7.99	.40	.56	.21	.53	82.45	4.13	5.78	2.17	5.47	6.30	.75	.53	.05	.17	70.65	6.67	22.68	258	.82	16	61.50	4.11	13.56	.05	3.27
17-18	1,900	1.033	11.68	9.33	.37	.63	.19	1.16	79.88	3.16	5.40	1.62	9.94	6.98	.86	.62	.06	.18	72.08	6.98	20.94	173	.91	41					
19	740	1.033	11.52	9.50	.34	.66	.18	.84	82.47	2.95	5.73	1.56	7.29	4.36	.83	.59	.06	.18	71.10	7.23	21.67	308	.87	28					
20-21	1,950	1.029	10.92	8.88	.32	.66	.19	.87	81.33	2.93	6.04	1.74	7.96	4.77	.80	.59	.04	.17	73.75	5.00	21.25	300	1.03	41					
22-23	2,000	1.033	14.85	12.54	.38	.76	.23	.94	84.44	2.56	5.12	1.55	6.33	5.58	.98	.75	.06	.17	76.55	6.12	17.33	312	1.09	71	161.50	9.44	24.60	.10	2.61
24-25	2,340	1.028	11.88	10.04	.37	.59	.21	.67	84.30	3.09	5.05	1.93	5.63	5.40	.89	.67	.05	.17	75.30	5.62	19.08	330	.97	50					
26	925	1.027	11.99	10.03	.37	.58	.21	.80	83.64	3.09	4.84	1.75	6.68	5.35	.92	.69	.06	.17	75.00	6.52	18.48	336	.90	35					
27-28	1,900	1.030	13.41	11.28	.38	.71	.20	.84	84.20	2.83	5.22	1.49	6.26	5.18	.87	.64	.06	.17	73.55	6.90	19.55	291	.94	50					
Av....	968	1.029	11.99	9.95	.37	.64	.20	.83	82.84	3.09	5.39	1.73	6.94	5.49	.86	.63	.05	.17	73.49	6.38	20.12	2.89	.94	42	15.92	.97	2.72	.07	2.94
Mar. 1-2	1,900	1.030	11.61	9.55	.35	.62	.22	.87	82.27	3.01	5.34	1.89	7.49	5.08	.86	.64	.06	.16	74.41	6.98	18.61	333	.92	62	97.50	5.78	19.05	.07	3.31
3-4	2,200	1.028	11.49	9.81	.30	.50	.20	.68	85.30	2.70	4.35	1.74	5.91	5.98	.88	.67	.05	.16	76.18	5.68	18.16	327	1.02	25					
5	1,200	1.030	12.36	10.48	.34	.63	.21	.70	84.79	2.75	5.10	1.70	5.66	7.02	.89	.66	.08	.15	74.20	8.99	16.81	255	.95	35					
6-7	2,710	1.024	12.81	10.47	.35	.65	.19	1.15	81.77	2.73	5.06	1.48	8.96	6.52	.87	.66	.05	.16	75.85	5.75	18.40	264	.99	50					
Av....	1,144	1.028	12.07	10.08	.33	.60	.20	.85	83.53	2.79	4.96	1.70	7.00	6.15	.87	.66	.06	.16	75.14	6.85	17.99	2.95	.97	43	13.93	.82	2.72	.07	3.31
Mar. 8-9	1,900	1.030	11.75	9.92	.46	.57	.20	.60	84.43	3.91	4.85	1.70	5.11	4.50	.99	.65	.06	.28	65.65	6.06	28.29	396	1.09	45	155.50	9.03	28.25	.10	3.13
10-11	3,010	1.023	13.36	11.10	.49	.59	.18	1.00	83.08	3.67	4.42	1.35	7.48	6.45	1.09	.73	.07	.29	66.98	6.42	26.60	367	1.12	62					
12	980	1.027	10.23	8.28	.42	.51	.16	.86	80.93	4.11	4.99	1.56	8.41	4.82	.79	.52	.04	.23	65.84	5.06	29.10	306	.84	35					
13-14	3,150	1.023	12.03	9.90	.40	.62	.20	.91	82.30	3.32	5.16	1.66	7.56	8.03	.94	.58	.06	.30	62.72	6.38	31.90	283	.87	38					
15	890	1.033	11.55	9.55	.43	.69	.17	.71	82.70	3.72	5.97	1.47	6.14	5.54	1.05	.70	.06	.29	66.70	5.70	27.60	333	.77	50	23.50	1.41	......	.12	.....
Av....	1,241	1.027	11.78	9.75	.55	.59	.18	.82	82.69	3.75	5.08	1.75	6.94	5.87	.98	.64	.06	.28	65.58	5.92	28.69	337	.94	46	22.37	1.30	4.03	.11	3.13

Analytical table in full—Continued.

Control B.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,080	1.029	16.92	14.24	0.61	0.69	0.27	1.11	84.16	3.60	4.07	1.59	6.56	6.12	1.17	0.92	0.08	0.17	78.63	6.84	14.53	474	1.23	66					
21	830	1.033	15.59	12.59	.52	.72	.24	1.52	80.80	3.33	4.61	1.52	9.75	5.40	.96	.73	.06	.17	76.05	6.25	17.70	378	.87	12	90.90	4.95	22.07	0.10	4.46
22	920	1.020	15.06	11.85	.65	.73	.24	1.59	78.69	4.31	4.84	1.59	10.56	5.94	1.07	.80	.05	.22	74.76	4.78	20.56	471	1.06	14					
Av....	943	1.027	15.86	12.89	.59	.71	.25	1.41	81.22	3.75	4.51	1.57	8.96	5.83	1.07	.82	.06	.19	76.48	5.96	17.59	441	1.05	31	30.30	1.65	7.35	.10	4.46
Oct. 23	1,175	1.028	14.91	11.38	.62	.74	.23	1.94	76.36	4.15	4.95	1.53	13.02	6.30	1.12	.85	.08	.20	75.89	7.14	17.85	360	.99	18					
24	1,150	1.028	15.57	13.11	.70	.68	.20	.88	84.24	4.49	4.35	1.28	5.65	6.66	1.12	.87	.05	.19	77.67	4.46	16.96	375	.85	10					
25	1,530	1.023	14.17	11.44	.59	.64	.21	1.29	80.74	4.16	4.51	1.48	9.10	7.70	1.04	.76	.06	.22	73.08	5.77	21.15	350	.96	19					
26	960	1.032	14.19	11.63	.54	.65	.21	1.16	81.96	3.81	4.58	1.48	8.17	5.54	1.14	.84	.07	.23	73.67	6.14	20.17	423	1.01	19	181.80	9.90	44.15	.10	4.46
27	1,210	1.028	16.41	13.40	.55	.69	.23	1.54	81.65	3.35	4.20	1.40	9.38	7.42	1.22	.96	.08	.18	78.68	6.56	14.75	438	1.26	59					
28	1,210	1.030	16.20	13.43	.63	.71	.20	1.23	82.89	3.89	4.38	1.24	7.57	7.47	1.27	.88	.09	.30	69.27	7.09	23.62	489	1.32	100					
29	1,400	1.025	16.03	13.11	.66	.66	.20	1.40	81.79	4.12	4.12	1.25	8.73	8.01	1.16	.87	.06	.24	75.00	5.17	20.69	483	1.02	Tr.					
30	1,780	1.023	15.34	12.85	.57	.74	.20	.98	83.77	3.73	4.82	1.30	6.39	9.24	1.09	.90	.07	.12	82.56	6.42	11.00	384	1.18	87					
Oct. 31 / Nov. 1	2,780	1.026	15.15	12.27	.65	.67	.19	1.37	80.98	4.29	4.42	1.25	9.04	6.70	1.05	.82	.08	.15	78.10	7.62	14.28	444	1.06	87	280.00	15.37	60.47	.24	3.94
Av....	1,320	1.027	15.33	12.51	.61	.68	.21	1.31	81.59	3.99	4.48	1.36	8.56	7.23	1.13	.86	.07	.20	75.99	6.26	17.85	416	1.07	44	46.18	2.53	10.46	.17	4.20
Nov. 2	945	1.033	15.51	12.82	.62	.63	.22	1.22	82.66	4.00	4.06	1.42	7.86	6.12	1.22	.95	.06	.22	77.87	4.92	18.03	429	.99	20					
3	1,190	1.030	18.00	14.96	.58	.75	.24	1.47	83.11	3.22	4.17	1.33	8.17	8.01	1.26	.92	.08	.26	73.01	6.35	20.63	438	1.21	42					
4	780	1.038	15.51	13.10	.55	.71	.21	.94	84.45	3.55	4.58	1.35	6.06	4.59	1.04	.81	.10	.13	77.87	9.61	12.50	423	1.05	83					
5	1,240	1.031	16.89	13.71	.57	.74	.26	1.61	81.17	3.37	4.39	1.54	9.53	7.92	1.19	.89	.06	.24	74.78	5.04	20.17	432	1.44	20	218.50	10.17	60.00	.08	5.90
6	1,130	1.030	18.24	15.19	.65	.72	.27	1.41	83.27	3.56	3.96	1.48	7.69	7.16	1.44	1.14	.06	.25	79.15	4.17	17.35	456	1.16	29					
7–8	2,185	1.031	17.12	14.28	.63	.67	.24	1.30	83.40	3.68	3.91	1.40	7.59	6.75	1.14	.90	.09	.14	78.94	7.89	12.28	420	1.05	77					
Av....	1,067	1.032	16.88	14.01	.60	.70	.21	1.24	79.67	3.56	4.18	1.42	7.81	6.76	1.21	.97	.07	.21	76.93	6.33	16.83	433	1.15	45	31.21	1.45	8.57	.08	5.90

Nov. 9	1,180	1.027	15.33	12.67	.67	.68	.18	1.13	82.64	4.37	4.48	1.17	7.37	6.89	1.20	.84	.09	.27	70.00	7.50	22.50	402	1.08	29	277.00	14.00	85.95	.12	6.14
10-11	3,190	1.021	15.97	13.15	.68	.64	.24	1.26	82.33	4.26	4.02	1.50	7.89	7.56	1.17	.88	.06	.23	75.21	5.13	19.66	469	1.16	22					
12-13	3,390	1.023	16.51	13.52	.62	.76	.23	1.38	81.88	3.75	4.60	1.39	8.36	9.10	1.20	.93	.08	.19	77.50	6.67	15.83	444	1.28	13					
14-15	3,220	1.021	16.60	13.73	.57	.67	.22	1.41	82.58	3.43	4.16	1.33	8.50	6.76	1.17	.92	.05	.20	78.63	4.27	17.09	419	1.20	17					
16-17	2,480	1.026	15.39	12.72	.72	.66	.22	1.07	82.44	4.68	4.29	1.43	6.95	6.57	1.03	.77	.09	.18	74.75	8.74	17.47	513	1.10	20	187.50	9.66	53.20	.10	5.52
18-19	3,650	1.019	16.12	13.57	.63	.62	.24	1.06	84.17	3.89	3.84	1.49	6.58	8.98	1.26	.91	.07	.28	72.23	5.56	22.22	464	1.17	Tr.					
20, 22	3,300	1.020	14.58	12.22	.73	.65	.23	.75	83.81	5.01	4.46	1.58	5.14	7.08	1.01	.82	.07	.12	81.19	6.93	11.88	333	1.09	17					
Av....	1,570	1.022	15.78	13.08	.66	.67	.22	1.15	82.69	4.19	4.26	1.41	7.26	7.56	1.16	.86	.07	.21	75.64	6.40	18.09	435	1.15	17	35.73	1.82	10.70	.11	5.83
Nov. 23-24	2,275	1.030	15.96	13.25	.67	.67	.30	1.07	83.02	4.20	4.20	1.88	6.70	4.41	1.22	.92	.14	.16	75.40	11.48	13.12	534	1.28	17	209.00	10.65	69.30	.10	6.50
25, 27	3,030	1.027	17.82	14.47	1.04	.74	.31	1.26	81.19	5.84	4.15	1.74	7.07	4.05	1.31	1.00	.08	.23	76.34	6.11	17.55	133	1.30	17					
28-29	3,900	1.019	16.25	13.51	.64	.70	.25	1.15	83.14	3.94	4.31	1.54	7.08	8.48	1.18	.88	.08	.23	74.55	6.78	19.49	402	1.94	Tr.					
Nov. 30, Dec. 1	2,275	1.030	15.63	12.64	.59	.71	.25	1.44	80.90	3.76	4.54	1.60	9.20	6.93	1.26	.92	.08	.26	73.00	6.35	20.65	483	1.00	17	244.50	12.62	72.86	.10	5.77
2-3	2,675	1.028	16.35	13.41	.78	.71	.26	1.19	82.10	4.77	4.28	1.59	7.26	7.11	1.20	.86	.10	.24	71.67	8.33	20.00	675	1.43	17					
4	1,250	1.031	16.61	13.85	.66	.69	.29	1.12	83.39	3.97	4.15	1.75	6.74	7.06	1.28	.94	.10	.24	73.55	7.70	18.75	480	1.07	14					
5-6	3,530	1.022	17.44	14.69	.59	.68	.26	1.22	84.20	3.39	3.92	1.49	7.00	8.76	1.30	.94	.06	.30	72.30	4.60	23.10	399	1.12	14					
Av....	1,456	1.027	16.58	13.69	.71	.70	.27	1.21	82.56	4.27	4.22	1.65	7.43	6.69	1.25	.92	.09	.24	75.26	7.48	18.95	444	1.31	14	34.88	1.78	10.93	.10	6.14
Dec. 7-8	2,180	1.034	17.10	14.30	.58	.65	.24	1.33	83.60	3.45	3.80	1.40	7.75	7.29	1.29	.96	.06	.27	74.40	4.65	20.95	495	1.13	17	298.00	15.55	67.86	.13	4.37
9-10	4,150	1.021	16.26	13.54	.53	.71	.25	1.23	83.30	3.25	4.35	1.54	7.56	9.59	1.44	.91	.08	.45	63.17	5.53	31.30	457	1.30	0					
11	1,170	1.032	16.17	13.27	.59	.71	.24	1.36	82.08	3.65	4.38	1.48	8.41	6.70	1.31	1.02	.09	.20	77.90	6.86	15.24	522	1.20	19					
12-13	2,110	1.034	17.61	15.17	.49	.67	.24	1.04	86.16	2.78	3.80	1.36	5.90	7.02	1.22	.97	.10	.15	79.50	8.20	12.30	432	1.17	20					
14-15	2,290	1.032	16.77	13.90	.59	.71	.22	1.35	82.88	3.52	4.24	1.31	8.05	7.11	1.23	.92	.05	.26	74.80	4.06	21.14	504	1.20	17	225.50	12.03	69.85	.13	5.80
16-17	5,725	1.017	20.83	17.57	.69	.80	.28	1.49	84.36	3.31	3.84	1.34	7.15	8.61	1.60	1.15	.04	.41	71.85	2.50	25.65	423	1.19	37					
18	1,080	1.030	16.77	14.35	.67	.71	.25	.79	85.55	4.00	4.24	1.49	4.72	5.80	1.34	1.05	.07	.22	78.38	5.22	16.40	309	1.13	28					
Av....	1,559	1.029	17.36	14.59	.59	.71	.25	1.22	83.99	3.42	4.09	1.42	7.08	7.45	1.35	1.00	.07	.28	74.29	5.29	20.42	449	1.19	19	43.62	2.29	11.47	.13	5.09
Jan. 4-5	3,775	1.019	12.79	10.64	.50	.74	.30	.61	83.20	3.90	5.79	2.35	4.76	9.23	1.00	.74	.07	.19	74.00	7.00	19.00	359	1.15	45	243.00	12.64	70.78	.11	5.60
6-7	2,800	1.027	17.46	14.78	.57	.71	.29	1.11	84.65	3.26	4.06	1.66	6.36	8.05	1.27	.99	.06	.22	77.95	4.72	17.32	429	1.51	88					
8	1,360	1.025	16.16	13.09	.56	.79	.30	1.42	81.00	3.47	4.89	1.86	8.78	6.62	1.19	.92	.07	.20	77.32	5.88	16.80	489	1.31	32					
9-10	3,675	1.022	15.57	12.84	.57	.79	.20	1.17	82.46	3.66	5.08	1.28	7.51	9.20	1.13	.82	.04	.27	72.56	3.54	23.90	430	1.00	20					
11-12	1,860	1.032	15.57	12.63	.48	.68	.22	1.56	81.12	3.08	4.36	1.41	10.03	5.94	1.10	.87	.04	.19	79.09	3.64	17.27	423	1.17	143	271.50	15.20	93.80	.11	6.16
13-14	2,880	1.030	18.48	15.41	.67	.76	.31	1.33	83.40	3.62	4.11	1.67	7.20	9.18	1.33	1.01	.07	.25	75.95	5.24	18.80	492	1.28	63					
15	1,700	1.027	19.04	16.08	.48	.79	.29	1.40	84.47	2.52	4.15	1.52	7.35	10.56	1.39	1.08	.03	.28	77.74	2.16	20.10	428	1.36	22					
16-17	2,650	1.028	17.54	14.72	.62	.74	.22	1.24	83.93	3.53	4.22	1.25	7.07	7.42	1.25	.96	.07	.22	76.80	5.60	17.60	486	1.22	50					
Av....	1,479	1.026	16.58	13.77	.56	.75	.27	1.23	83.03	3.38	4.58	1.63	7.38	8.28	1.21	.92	.06	.23	76.43	4.72	18.85	442	1.27	58	36.75	1.99	11.75	.11	5.88
Jan. 18-19	1,710	1.030	15.24	12.62	.63	.69	.24	1.06	82.82	4.13	4.53	1.57	6.95	5.53	1.19	.88	.06	.25	73.98	5.02	21.00	516	1.26	91	296.00	14.85	106.95	.13	7.20
20-21	3,020	1.025	17.01	14.14	.62	.71	.26	1.28	83.11	3.65	4.16	1.53	7.55	8.97	1.26	.96	.05	.25	76.20	3.97	19.83	426	1.00	77					
22	2,150	1.021	14.83	12.01	.40	.77	.25	1.40	80.95	2.70	5.20	1.69	9.46	11.87	1.18	.90	.06	.22	76.30	5.08	18.62	327	1.22	37					
23-24	2,860	1.023	14.34	12.29	.43	.69	.22	.71	85.70	3.00	4.82	1.53	4.95	5.99	1.04	.80	.08	.16	76.95	7.70	15.35	462	1.10	91					
25-26	2,390	1.032	16.19	13.40	.61	.71	.28	1.19	82.80	3.77	4.38	1.73	7.32	7.87	1.16	.95	.08	.13	81.90	6.90	11.20	387	1.28	100	294.50	15.94	98.68	.13	6.18
27-28	2,730	1.030	18.29	15.10	.65	.78	.31	1.45	82.56	3.55	4.27	1.69	7.93	8.55	1.31	1.02	.06	.23	77.90	4.58	17.52	468	1.30	25					
29	1,425	1.027	18.29	15.35	.70	.75	.29	1.20	83.90	3.86	4.10	1.58	6.56	8.65	1.27	1.01	.08	.18	79.50	6.30	14.20	498	1.22	50					
30-31	3,110	1.024	15.92	13.15	.55	70	.22	1.30	82.60	3.45	4.41	1.38	8.16	7.00	1.15	.87	.08	.20	75.65	6.95	17.40	426	1.21	55					
Av....	1,385	1.026	16.26	13.51	.57	.72	.26	1.19	83.06	3.51	4.48	1.59	7.36	8.05	1.19	.92	.07	.20	77.29	5.81	16.89	439	1.19	66	42.18	2.19	14.68	.13	6.69

Analytical table in full—Continued.

Control B—Continued.

Date.	Urine.																									Feces.				
			Urine nitrogen.													Urine sulphur.														
									Per cent of total nitrogen.											Per cent of total sulphur.									
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100)	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat.}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1-2	2,150	1.034	17.13	14.30	0.59	0.69	0.24	1.31	83.47	3.45	4.03	1.40	7.65	7.65	1.23	0.99	0.07	0.17	80.50	5.69	13.81	525	1.29	25					
3-4	1,580	1.034	11.37	9.24	.41	.66	.19	.87	81.25	3.60	5.80	1.67	7.68	4.86	.83	.60	.05	.18	72.35	6.01	21.64	369	1.02	33	219.00	14.04	57.43	0.12	4.09
5	930	1.038	16.14	13.30	.44	.75	.25	1.40	82.40	2.72	4.65	1.55	8.68	6.75	1.29	1.01	.07	.21	78.30	5.42	16.28	186	1.06	28					
6-7	2,960	1.028	17.19	14.32	.53	.69	.26	1.39	83.30	3.08	4.01	1.51	8.10	7.98	1.23	.90	.09	.24	73.15	7.32	19.53	504	1.35	25					
Av....	1,089	1.034	15.46	12.79	.49	.69	.24	1.24	82.60	3.21	4.62	1.53	8.03	6.81	1.15	.88	.07	.20	76.07	6.11	17.81	396	1.18	28	31.28	2.00	8.20	.12	4.09
Feb. 8	1,300	1.020	10.68	8.39	.54	.69	.17	.89	78.55	5.06	6.46	1.59	8.34	4.68	.62	.40	.06	.16	64.52	9.68	25.80	408	.98	12					
9	1,330	1.020	8.25	5.92	.50	.62	.15	1.06	71.75	6.06	7.52	1.82	12.85	6.75	.56	.31	.08	.17	55.40	14.30	30.30	348	.88	6					
10	1,975	1.015	8.82	5.62	.46	.64	.15	1.95	63.70	5.22	7.26	1.70	22.12	5.80	.58	.31	.07	.20	53.43	12.07	34.50	292	.90	31					
11	1,190	1.018	6.66	4.55	.41	.57	.13	1.00	68.33	6.16	8.56	1.95	15.00	3.32	.48	.28	.06	.14	58.35	12.50	29.15	280	.73	13	247.50	15.26	58.30	.27	3.82
12	1,150	1.017	6.37	4.11	.39	.65	.12	1.10	64.55	6.12	10.20	1.88	17.25	3.55	.48	.28	.06	.14	58.35	12.50	29.15	285	.73	14					
13	900	1.019	6.57	4.04	37	.75	.12	1.29	61.50	5.63	11.41	1.82	19.64	2.48	.44	.26	.05	.13	59.10	11.35	39.55	315	.78	9					
14	1,540	1.015	5.52	3.42	.43	.70	.10	.87	61.94	7.80	12.69	1.81	15.76	3.83	.46	.27	.04	.15	58.70	8.70	32.60	283	.80	14					
Av....	1,341	1.018	7.55	5.15	.44	.66	.13	1.16	67.17	6.01	9.16	1.79	15.71	4.34	.52	.30	.06	.16	58.26	11.59	31.58	316	.83	14	35.35	2.18	8.33	.27	3.82
Feb. 15-16	2,550	1.026	12.06	9.86	.43	.62	.23	.92	81.80	3.56	5.13	1.90	7.61	7.80	.93	.66	.09	.18	70.97	9.68	19.35	228	.85	28					
17-18	1,500	1.034	11.52	9.40	.47	.54	.15	.96	81.60	4.08	4.67	1.32	8.33	4.95	.86	.63	.05	.18	73.25	5.82	20.93	315	.77	36	345.50	18.36	88.66	.19	4.84
19	770	1.037	13.86	11.66	.51	.79	.21	.69	84.05	3.68	5.70	1.52	5.05	3.96	1.10	.80	.09	.21	72.70	8.20	19.10	540	1.15	28					
20-21	2,500	1.028	16.61	13.62	.57	.85	.28	1.29	82.00	3.43	5.12	1.68	7.77	7.88	1.18	.87	.06	.25	73.72	5.08	21.20	450	1.25	35					
22-23	2,200	1.031	15.78	12.74	.55	.88	.27	1.34	80.83	3.49	5.58	1.71	8.49	6.93	1.14	.82	.09	.23	71.90	7.90	20.20	441	1.26	45					
24-25	2,790	1.030	16.92	13.95	.54	.79	.28	1.36	82.46	3.19	4.66	1.65	8.04	8.82	1.25	.93	.09	.23	74.40	7.20	18.40	432	1.19	33	289.00	16.21	90.70	.12	5.59
26	1,750	1.027	20.05	17.08	.57	.83	.29	1.28	85.20	2.84	4.14	1.44	6.38	9.34	1.34	1.02	.08	.24	76.13	5.97	17.90	490	1.27	35					
27-28	2,920	1.029	18.48	15.89	.61	.82	.29	.87	86.00	3.30	4.43	1.57	4.70	9.40	1.38	1.04	.08	.26	75.35	5.80	18.85	486	1.34	50					
Av....	1,213	1.030	15.66	13.02	.53	.76	.25	1.09	82.99	3.45	4.93	1.59	7.04	7.38	1.15	.87	.08	.22	73.55	6.95	19.49	423	1.14	36	45.32	2.47	12.81	.15	5.22

Mar. 1-2	2,400	1.030	15.72	12.94	.53	.75	.30	1.20	82.31	3.37	4.78	1.91	7.63	8.82	1.17	.87	.09	.21	74.35	7.70	17.95	456	1.15	18	312.50	17.22	102.85	.21	5.98
3-4	3,660	1.026	15.00	12.25	.53	.79	.21	1.22	81.67	3.53	5.27	1.49	8.13	9.12	1.10	.80	.08	.22	72.73	7.27	20.00	466	1.33	37					
5	1,520	1.028	17.05	13.87	.63	.89	.27	1.39	81.35	3.70	5.22	1.58	8.15	9.08	1.25	.97	.08	.20	77.60	6.40	16.00	474	1.33	55					
Av....	1.516	1.028	15.92	13.02	.56	.81	.26	1.27	81.77	3.53	5.09	1.63	7.97	9.01	1.17	.88	.08	.21	73.89	7.09	17.99	465	1.27	33	62.50	3.44	20.57	.21	5.98
Mar. 8-9	2,600	1.025	14.46	11.95	.53	.74	.24	1.00	82.64	3.66	5.12	1.66	6.92	6.12	1.17	.81	.03	.33	69.24	2.56	28.20	438	1.22	55	266.50	14.45	74.81	.12	5.18
10-11	1,980	1.034	17.37	14.14	.74	.73	.27	1.49	81.41	4.26	4.20	1.55	8.58	4.83	1.35	.95	.05	.35	70.38	3.71	25.91	618	1.46	55					
12	1,550	1.028	18.10	14.60	.83	.83	.30	1.54	80.65	4.59	4.59	1.66	8.51	8.19	1.45	1.03	.06	.36	71.03	4.14	24.83	657	1.47	35					
13-14	4,850	1.019	18.15	14.86	.75	.97	.29	1.28	81.88	4.13	5.34	1.60	7.05	10.54	1.44	.98	.08	.38	68.05	5.55	26.40	533	1.35	41					
15	2,400	1.018	15.90	12.98	.69	.85	.23	1.15	81.63	4.34	5.34	1.45	7.24	8.21	1.18	.77	.10	.31	65.24	8.48	26.28	525	1.46	9	132.00	6.74	......	.42	.....
Av....	1,672	1.025	16.79	13.71	.71	.82	.27	1.29	81.64	4.19	4.92	1.58	7.66	7.58	1.32	.91	.06	.35	68.79	4.89	26.32	554	1.39	39	49.81	2.65	10.68	.27	5.18

Analytical table in full—Continued.

Control C.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,860	1.017	12.46	10.15	0.53	0.68	0.20	0.90	81.46	4.29	5.45	1.60	7.22	8.04	0.94	0.70	0.07	0.18	74.47	7.45	19.14	253	0.78	0	42.66	2.73	9.57	0.07	3.50
21	1,120	1.026	11.37	9.41	.43	.66	.19	.68	82.77	3.78	5.80	1.67	5.98	7.92	.88	.69	.04	.15	78.41	4.55	17.03	168	.87	62					
22	1,250	1.023	14.48	11.59	.59	.71	.22	1.37	80.04	4.07	4.90	1.52	9.45	6.66	1.07	.79	.05	.23	73.84	4.67	21.49	353	.91	50					
Av....	1,410	1.022	12.77	10.38	.52	.68	.20	.98	81.42	4.05	5.38	1.59	7.55	7.54	.96	.73	.05	.19	75.57	5.56	19.22	258	.85	34	14.22	.91	3.19	.07	3.50
Oct. 23	1,190	1.027	13.59	11.15	.55	.66	.21	1.02	82.04	4.04	4.85	1.54	7.50	7.20	1.05	.79	.05	.22	75.24	4.76	20.95	360	.96	20	85.34	5.47	19.14	.07	3.50
24	1,210	1.029	13.80	11.16	.45	.67	.23	1.29	80.87	3.26	4.85	1.66	9.34	7.60	1.02	.80	.08	.15	78.41	7.84	14.70	264	.85	71					
25	790	1.031	12.30	10.21	.44	.63	.19	.83	83.01	3.57	5.14	1.54	6.74	5.18	.87	.64	.06	.17	73.55	6.89	19.54	273	.89	87					
26	1,120	1.028	13.59	11.23	.59	.71	.22	.84	82.63	4.34	5.23	1.60	6.18	5.99	1.14	.88	.07	.19	77.17	6.14	16.66	393	1.03	63					
27	880	1.030	12.58	10.35	.46	.67	.21	.89	82.28	3.66	5.33	1.67	7.07	6.39	.96	.67	.07	.21	69.79	7.29	21.87	258	.79	95					
28	1,095	1.030	12.71	10.23	.57	.73	.21	.97	80.48	4.48	5.74	1.65	7.63	8.28	.89	.59	.11	.20	66.30	12.35	22.47	288	.91	63					
29	980	1.027	10.95	8.56	.53	.66	.18	1.02	78.16	4.84	6.03	1.64	9.32	7.69	.91	.53	.07	.31	58.24	7.69	36.06	294	.76	91	173.00	10.77	43.80	.24	4.06
30	1,350	1.024	10.35	8.03	.46	.66	.19	1.01	77.58	4.44	6.38	1.84	9.76	7.42	.85	.56	.12	.17	65.87	14.11	19.99	222	.75	28					
Oct. 31, Nov. 1	2,290	1.029	12.17	9.31	.68	.66	.19	1.33	76.50	5.59	5.42	1.56	10.92	7.51	.91	.66	.06	.20	72.52	6.59	21.00	321	.86	71					
Av....	1,091	1.028	12.45	10.92	.52	.67	.20	1.02	80.39	4.25	5.44	1.63	8.27	7.03	.95	.68	.08	.20	70.79	8.18	21.35	298	.86	65	25.83	1.62	6.29	.15	3.78
Nov. 2	1,170	1.028	11.58	9.27	.54	.65	.18	.94	80.04	4.66	5.61	1.55	8.12	8.10	.93	.61	.06	.25	65.60	6.45	26.88	318	.77	87	213.50	13.40	39.50	.16	2.95
3	950	1.030	11.94	9.25	.50	.72	.19	1.28	77.46	4.19	6.03	1.59	10.72	6.71	.88	.62	.06	.21	70.61	6.82	23.86	312	.83	111					
4	835	1.033	11.99	9.22	.53	.73	.21	1.30	76.89	4.42	6.09	1.75	10.84	5.99	.79	.57	.04	.18	72.14	5.06	22.79	264	.73	111					
5	1,000	1.030	12.20	9.29	.61	.74	.21	1.35	76.15	5.00	6.07	1.72	11.06	5.36	.88	.61	.05	.21	69.32	5.68	23.86	294	.60	67					
6	600	1.035	10.17	7.61	.55	.67	.20	1.14	74.81	5.41	6.59	1.97	11.21	4.37	.80	.52	.05	.23	65.01	6.25	28.75	267	.66	83					
7–8	1,250	1.035	12.12	9.51	.56	.68	.22	1.15	78.45	4.62	5.61	1.82	9.49	2.75	.82	.61	.06	.15	74.39	7.31	18.28	327	.79	188					
Av....	829	1.032	11.67	9.02	.55	.69	.20	1.17	77.30	4.71	6.00	1.73	10.24	5.55	.85	.59	.05	.20	69.51	6.23	24.07	297	.72	108	30.50	1.91	5.64	.16	2.95

Nov. 9	740	1.034	12.60	10.04	.46	.64	.22	1.24	79.68	3.65	5.08	1.75	9.84	4.32	.80	.62	.02	.16	77.50	2.50	20.00	252	.95	143					
10–11	2,280	1.025	12.84	10.35	.54	.65	.23	1.07	80.50	4.21	5.18	1.79	8.23	6.57	.91	.65	.07	.19	71.43	7.69	20.87	267	.85	100					
12–13	2,075	1.029	12.79	9.81	.54	.68	.21	1.55	76.70	4.22	5.32	1.64	12.11	7.92	.86	.66	.05	.15	76.73	5.81	17.44	300	.83	83	187.00	11.86	35.75	.13	3.01
14–15	1,750	1.028	12.81	10.64	.60	.63	.19	.75	83.06	4.68	4.92	1.48	5.85	5.31	.88	.68	.05	.15	77.28	5.68	17.03	384	.85	20					
16–17	1,140	1.030	11.70	9.24	.51	.65	.20	1.10	78.97	4.36	5.56	1.71	9.40	5.04	.84	.60	.07	.17	71.43	8.33	20.24	321	.92	50					
18–19	2,250	1.024	11.58	9.45	.42	.56	.19	.96	81.60	3.63	4.84	1.64	8.29	6.21	.86	.60	.06	.20	69.75	6.98	23.25	252	.78	36	169.00	10.91	29.90	.15	2.74
20, 22	2,000	1.028	10.23	8.41	.44	.56	.17	.65	82.22	4.30	5.47	1.66	6.35	6.52	.90	.66	.04	.20	73.33	4.44	22.22	282	.87	17					
Av....	941	1.028	12.08	9.71	.50	.62	.20	1.05	80.39	4.15	5.19	1.66	8.59	5.98	.86	.64	.05	.17	73.92	5.92	20.15	294	.86	64	27.38	1.75	5.05	.14	2.88
Nov. 23–24	1,675	1.032	11.57	9.24	.53	.65	.20	.95	79.85	4.58	5.62	1.73	8.21	6.30	.94	.66	.06	.21	70.21	6.38	22.34	171	.84	33					
25, 27	1,710	1.033	11.87	9.30	.80	.65	.21	.91	78.34	6.74	5.47	1.77	7.67	6.12	.89	.64	.04	.22	71.91	4.49	24.72	105	.88	71	189.50	12.60	44.35	.16	3.52
28–29	2,430	1.029	14.51	11.78	.64	.63	.26	1.20	81.19	4.41	4.34	1.79	8.27	8.68	1.11	.79	.06	.26	71.17	5.40	23.42	285	1.04	42					
Nov. 30 } Dec. 1 }	1,660	1.033	12.33	9.70	.59	.59	.22	1.23	78.70	4.77	4.77	1.78	9.98	6.17	.87	.65	.06	.16	74.70	6.90	18.40	408	.94	42					
Dec. 2–3	1,650	1.032	11.82	9.28	.56	.64	.20	1.14	78.50	4.74	5.42	1.69	9.65	6.21	.83	.60	.05	.18	72.30	6.02	21.68	360	.93	42	181.50	10.70	46.20	.12	4.32
4	1,170	1.027	12.75	10.37	.66	.63	.21	.88	81.38	5.18	4.94	1.65	6.85	7.51	.84	.61	.08	.15	72.60	9.53	17.87	318	.83	20					
5–6	3,150	1.022	11.93	9.61	.53	.64	.20	.95	80.60	4.44	5.33	1.67	7.96	5.29	.89	.60	.05	.24	67.42	5.62	26.96	277	.89	23					
Av....	1,034	1.029	12.39	9.89	.61	.63	.21	1.04	79.95	4.99	5.13	1.73	8.37	6.61	.91	.65	.06	.20	71.47	6.33	22.20	275	.91	39	28.53	1.79	6.96	.14	3.92
Dec. 7–8	2,210	1.030	12.83	10.50	.48	.63	.22	1.00	81.83	3.74	4.92	1.72	7.79	5.15	.99	.70	.05	.24	70.70	5.05	24.25	291	.90	20					
9–10	2,520	1.025	13.21	10.77	.56	.75	.22	.91	81.55	4.24	5.67	1.66	6.88	6.66	.89	.63	.12	.14	70.80	13.50	15.70	360	.94	25	201.00	12.05	47.96	.14	3.98
11	935	1.026	10.59	8.51	.49	.55	.20	.84	80.34	4.65	5.20	1.89	7.92	3.60	.76	.54	.06	.16	71.05	7.90	21.05	300	.65	14					
12–13	2,110	1.029	11.00	8.65	.47	.64	.20	1.04	78.63	4.27	5.82	1.82	9.46	6.66	.84	.60	.08	.16	71.45	9.52	19.03	258	.81	14					
14–15	1,900	1.031	11.57	9.38	.40	.66	.20	.93	81.08	3.46	5.70	1.73	8.03	6.44	.88	.63	.06	.19	71.60	6.82	21.58	261	.93	23					
16–17	2,400	1.029	14.07	11.93	.22	.67	.23	1.02	84.80	1.57	4.76	1.63	7.24	7.15	1.08	.79	.06	.23	73.15	5.53	21.32	345	1.01	33	150.50	9.32	31.96	.14	3.43
18	1,110	1.031	14.16	11.88	.53	.64	.24	.87	83.92	3.74	4.51	1.69	6.14	7.47	1.07	.80	.06	.21	74.75	5.60	19.65	360	1.01	56					
Av....	1,014	1.029	12.49	10.23	.45	.65	.21	.94	81.73	3.69	5.22	1.73	7.63	6.16	.93	.67	.07	.19	71.93	7.90	20.37	311	.88	26	29.29	1.78	6.66	.14	3.71
Jan. 4–5	1,420	1.032	13.23	10.88	.67	.65	.22	.81	82.25	5.06	4.91	1.66	6.11	3.87	.87	.65	.07	.15	74.71	8.05	17.24	402	.91	50					
6–7	2,520	1.025	12.20	9.94	.58	.60	.22	.86	81.49	4.75	4.91	1.80	7.05	8.15	.97	.65	.07	.25	67.02	7.21	25.77	288	.82	100	198.00	12.26	49.08	.15	4.00
8	1,600	1.023	9.82	7.64	.41	.63	.21	.93	77.80	4.18	6.42	2.13	9.47	9.31	.73	.50	.07	.16	68.50	9.59	21.91	176	.65	63					
9–10	2,740	1.023	10.89	8.39	.46	.67	.21	1.16	77.04	4.22	6.15	1.93	10.66	8.42	.81	.57	.06	.18	70.37	7.41	22.22	288	.89	41					
11–12	1,730	1.036	11.85	9.40	.38	.63	.22	1.22	79.39	3.20	5.27	1.81	10.30	5.89	.92	.67	.05	.20	72.83	5.44	21.73	282	1.03	200					
13–14	2,200	1.028	10.28	8.98	.44	.65	.23	1.27	77.45	3.97	5.61	1.99	10.98	7.56	.91	.60	.06	.25	65.94	6.60	27.46	315	.85	100					
15	1,740	1.023	12.79	10.33	.49	.72	.22	1.03	80.77	3.83	5.63	1.72	8.05	9.81	.98	.74	.05	.19	75.05	5.10	19.85	317	1.04	6	223.00	13.39	49.60	.16	3.71
16–17	3,200	1.024	12.20	10.02	.41	.68	.22	.87	82.14	3.36	5.57	1.80	7.13	8.83	.88	.64	.07	.17	72.73	7.96	19.31	288	1.06	77					
Av....	1,225	1.027	11.82	9.44	.48	.65	.22	1.02	79.79	4.07	5.56	1.86	8.72	7.73	.88	.63	.06	.19	70.89	7.17	21.93	294	.91	79	30.07	1.83	7.04	.15	3.86
Jan. 18–19	1,950	1.031	11.34	9.05	.46	.64	.23	.96	79.90	4.05	5.57	2.03	8.44	7.20	.87	.60	.07	.20	69.00	8.05	22.95	312	1.05	154					
20–21	1,890	1.031	12.17	9.65	.46	.64	.22	1.20	79.15	3.78	5.37	1.84	9.86	6.39	.88	.65	.06	.17	73.90	6.80	19.30	285	.73	143					
22	1,090	1.028	10.44	8.83	.32	.66	.21	.42	84.57	3.07	6.32	2.01	4.03	7.06	.78	.56	.06	.16	71.80	7.70	20.50	186	.77	35	203.00	12.90	50.92	.16	3.94
23–24	2,890	1.024	12.09	9.59	.37	.65	.21	1.27	79.32	3.06	5.38	1.74	10.50	7.51	.86	.63	.05	.18	73.23	5.82	20.95	282	.93	133					
25–26	2,240	1.029	12.00	9.71	.40	.61	.22	1.06	80.90	3.36	5.04	1.83	8.87	7.11	.87	.66	.07	.14	75.85	8.05	16.10	198	.97	111					
27–28	1,900	1.032	12.09	9.91	.38	.68	.22	.90	82.00	3.10	5.63	1.82	7.45	8.51	.91	.67	.04	.20	73.60	4.40	22.00	279	.93	45	170.00	10.47	21.79	.12	2.08
29	1,165	1.027	11.87	9.59	.46	.60	.22	1.00	80.79	3.87	5.05	1.85	8.44	6.75	.89	.63	.08	.18	70.80	9.00	20.20	285	.84	77					
30–31	2,140	1.025	11.56	9.14	.40	.58	.19	1.25	79.00	3.46	5.10	1.60	10.80	6.76	.79	.58	.05	.16	73.35	6.35	20.30	294	.85	77					
Av....	1,090	1.028	11.69	9.43	.41	.63	.21	1.01	80.70	3.47	5.43	1.84	8.55	7.16	.86	.62	.06	.17	72.69	7.02	20.26	264	.88	97	26.64	1.67	5.19	.14	3.01

Analytical table in full—Continued.

Control C—Continued

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	Feces N / Urine N.	Feces fat / Feces N.
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1–2	1,960	1.031	12.83	10.55	0.43	0.65	0.19	1.01	82.27	3.35	5.03	1.48	7.87	6.16	0.98	0.76	0.06	0.16	77.55	6.12	16.33	273	0.96	100					
3–4	1,740	1.033	13.41	11.24	.40	.69	.21	.87	83.86	2.98	5.12	1.56	6.48	5.76	.95	.71	.06	.18	74.70	6.23	18.98	327	1.01	45	189.00	12.00	32.70	0.12	2.73
5	930	1.035	13.77	11.31	.44	.67	.22	1.13	82.11	3.22	4.86	1.60	8.21	7.07	1.03	.77	.07	.19	74.80	6.77	18.43	276	.89	77					
6–7	1,610	1.036	13.20	10.79	.45	.65	.20	1.11	81.75	3.41	4.93	1.51	8.40	6.70	.99	.74	.07	.18	74.75	7.07	18.18	333	.98	63					
Av....	891	1.034	13.30	10.97	.43	.66	.21	1.03	82.49	3.24	4.98	1.54	7.74	6.42	.99	.75	.06	.18	75.45	6.55	17.98	302	.96	66	27.00	1.71	4.67	.12	2.73
Feb. 8	700	1.031	9.87	7.68	.50	.61	.14	.95	77.75	5.02	6.18	1.42	9.63	3.56	.53	.35	.05	.13	66.06	9.44	24.50	363	.84	25					
9	1,030	1.021	7.25	5.38	.47	.58	.11	.71	74.20	6.48	8.00	1.52	9.80	4.90	.48	.30	.04	.14	62.50	8.33	29.17	204	.60	21					
10	1,430	1.011	6.40	5.00	.18	.65	.14	.43	78.12	2.81	10.16	2.19	6.72	4.58	.46	.26	.06	.14	56.55	13.05	30.40	194	.65	31					
11	1,400	1.016	5.46	3.84	.45	.58	.13	.46	70.35	8.24	10.62	2.38	8.41	6.64	.39	.24	.03	.12	61.50	7.70	30.80	179	.52	28	133.00	7.84	26.90	.18	3.43
12	1,270	1.016	4.93	2.85	.45	.56	.12	.95	57.80	9.13	11.35	2.43	19.29	5.60	.39	.22	.05	.12	56.40	12.80	30.80	180	.55	17					
13	1,140	1.014	4.85	3.10	.41	.66	.12	.56	63.92	8.45	13.60	2.48	11.55	6.43	.39	.22	.06	.11	56.40	15.40	28.20	205	.60	21					
14	990	1.019	4.78	3.22	.44	.56	.11	.45	67.36	9.20	11.71	2.30	9.42	5.36	.36	.22	.01	.10	61.10	11.10	27.80	216	.59	23					
Av....	1,137	1.018	6.22	4.44	.41	.60	.12	.64	69.94	7.04	10.23	2.10	10.69	5.29	.43	.26	.05	.12	60.06	11.11	28.81	220	.62	24	19.00	1.12	3.84	.18	3.43
Feb. 15–16	2,190	1.029	9.33	7.09	.49	.61	.22	.92	76.00	5.25	6.54	2.36	9.85	7.89	.77	.54	.06	.17	70.20	7.80	22.00	213	.77	50					
17–18	2,020	1.023	11.43	9.04	.44	.59	.21	1.15	79.09	3.85	5.16	1.84	10.06	8.02	.93	.63	.06	.24	67.70	6.47	25.83	135	.87	50					
19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	200.50	12.75	43.80	.15	3.43
20–21	1,600	1.035	13.89	11.24	.43	.71	.24	1.27	80.93	3.10	5.11	1.73	9.13	5.40	.91	.67	.06	.18	73.60	6.60	19.80	297	.94	50					
22–23	1,520	1.036	12.80	10.78	.46	.71	.21	.61	84.24	3.59	5.54	1.87	4.76	5.00	.93	.69	.06	.18	74.20	6.45	19.35	309	1.01	62					
24–25	2,120	1.027	11.97	10.03	.44	.63	.22	.65	83.80	3.68	5.26	1.83	5.43	5.54	.92	.68	.06	.18	73.92	6.52	19.56	291	.83	42	153.50	9.66	27.50	.10	2.85
26	1,100	1.031	13.41	11.11	.44	.71	.22	.93	82.88	3.28	5.28	1.64	6.92	6.18	.97	.71	.07	.19	73.20	7.22	19.58	300	.94	35					
27–28	2,050	1.030	12.63	10.39	.44	.67	.23	.90	82.27	3.48	5.30	1.82	7.13	6.56	.88	.65	.05	.18	73.84	5.68	20.48	309	.99	32					
Av....	970	1.031	12.21	9.95	.45	.66	.22	.92	81.31	3.75	5.45	1.87	7.61	6.37	.90	.65	.06	.19	72.38	6.68	20.94	265	.91	46	25.28	1.60	5.09	.12	3.14

Mar. 1–2	2,100	1.031	12.38	10.13	.34	.65	.25	1.01	81.80	2.75	5.25	2.04	8.16	7.24	.89	.65	.06	.18	73.05	6.74	20.21	312	1.04	42					
3–4	2,150	1.024	11.94	9.88	.44	.64	.20	.78	82.73	3.69	5.36	1.68	6.54	5.38	.90	.67	.05	.18	74.44	5.55	20.00	321	.97	23	165.00	10.30	28.73	.11	2.79
5	1,020	1.033	13.44	10.94	.40	.75	.23	1.12	81.40	2.98	5.58	1.71	8.33	7.02	1.00	.76	.06	.18	76.00	6.00	18.00	288	1.07	16					
6–7	1,860	1.035	15.45	12.72	.50	.79	.21	1.23	82.33	3.24	5.11	1.36	7.96	6.12	1.08	.82	.07	.19	75.92	6.48	17.60	342	1.21	25					
Av....	1,017	1.031	13.30	10.92	.42	.71	.22	1.04	82.06	3.16	5.32	1.69	7.75	6.44	.99	.72	.06	.18	74.85	6.19	18.95	316	1.07	26	23.57	1.47	4.10	.11	2.79
Mar. 8–9	1,360	1.034	13.53	11.13	.53	.66	.22	.99	82.26	3.92	4.87	1.63	7.32	5.35	1.09	.74	.08	.27	67.90	7.34	24.76	354	1.05	42					
10–11	2,390	1.029	13.53	10.81	.56	.71	.23	1.22	79.88	4.14	5.25	1.70	9.03	7.38	1.07	.70	.08	.29	65.42	7.48	27.10	351	.93	83	182.00	11.05	31.10	.11	2.81
12	1,390	1.028	14.81	12.03	.66	.69	.21	1.22	81.24	4.44	4.66	1.42	8.24	8.20	1.15	.80	.07	.28	69.59	6.08	24.33	378	1.02	17					
13–14	2,300	1.029	12.54	9.97	.55	.69	.21	1.12	79.53	4.38	5.50	1.67	8.93	6.57	.93	.61	.07	.25	65.67	7.53	26.80	270	.85	50					
15	1,160	1.029	14.88	11.81	.55	.87	.26	1.39	79.36	3.70	5.85	1.75	9.34	7.79	1.19	.81	.08	.30	68.10	6.72	25.18	342	1.10	28	64.50	3.55	......	.23	.....
Av....	1,075	1.029	13.86	11.15	.57	.72	,23	1.19	80.45	4.12	5.23	1.63	8.57	7.06	1.09	.73	.07	.28	67.34	7.03	25.63	339	.99	44	30.81	1.82	4.44	.17	2.81

Analytical table in full—Continued.

Control D.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	840	1.028	11.79	9.88	0.38	0.60	0.17	0.76	83.80	3.21	5.08	1.44	6.44	5.04	0.77	0.63	0.04	0.10	81.82	5.19	12.99	252	0.70	100					
21	1,240	1.022	11.76	9.93	.26	.59	.19	.79	84.44	2.21	5.01	1.61	6.71	6.12	.85	.67	.04	.14	78.81	8.27	16.47	108	.71	55	40.80	2.07	6.84	0.05	3.30
22	1,340	1.024	16.80	13.96	.47	.68	.25	1.44	83.13	2.80	3.98	1.48	8.58	7.20	1.25	.98	.03	.24	78.39	2.40	19.20	303	1.19	83					
Av....	1,140	1.025	13.45	11.26	.37	.62	.30	.97	83.79	2.74	4.69	1.51	7.24	6.12	.96	.76	.04	.16	79.67	5.29	16.22	221	.87	79	13.60	.69	2.28	.05	3.30
Oct. 23	1,335	1.022	14.34	11.66	.52	.54	.19	1.43	81.31	3.62	3.76	1.32	9.97	6.75	1.02	.81	.04	.17	79.39	3.92	16.66	308	.70	50					
24	1,235	1.024	13.11	10.45	.38	.54	.18	1.56	79.71	2.90	4.12	1.37	11.90	5.94	.96	.77	.04	.14	80.20	4.16	14.58	195	.66	71					
25	1,810	1.018	14.04	11.16	.53	.63	.19	1.53	79.49	3.77	4.48	1.35	10.90	6.08	.98	.73	.02	.23	74.49	2.04	23.46	216	.73	20					
26	760	1.027	8.64	7.07	.28	.51	.18	.60	81.84	3.24	5.90	2.08	6.94	5.01	.71	.52	.03	.16	73.24	4.22	22.53	126	.49	71	81.60	4.14	13.68	.05	3.30
27	1,260	1.020	11.85	9.80	.37	.59	.17	.92	82.70	3.12	4.98	1.43	7.76	5.17	.91	.67	.04	.20	73.62	4.39	21.97	192	.67	63					
28	1,295	1.020	10.20	8.25	.39	.53	.15	.88	80.87	3.74	5.19	1.50	8.62	5.36	.77	.55	.07	.15	71.43	9.09	19.48	231	.70	80					
29	1,590	1.017	11.70	9.53	.38	.61	.18	1.00	81.45	3.25	5.22	1.54	8.55	8.49	.88	.63	.08	.18	71.59	9.09	20.45	140	.62	1.10					
30	1,560	1.020	12.22	10.33	.43	.63	.17	.66	84.50	3.52	5.15	1.39	5.40	7.83	.93	.77	.14	.03	82.79	15.05	3.23	193	.74	50	202.00	14.02	25.35	.28	1.81
Oct. 31, Nov. 1	2,652	1.022	12.78	10.27	.46	.59	.18	1.28	80.34	3.60	4.62	1.41	10.01	5.45	.90	.66	.07	.17	73.33	7.78	18.88	303	.77	19					
Av....	1,350	1.021	12.09	9.84	.41	.57	.18	1.09	81.35	3.42	4.82	1.49	8.89	6.23	.89	.68	.06	.16	75.56	6.64	17.91	215	.67	59	28.36	1.82	3.90	.16	2.55
Nov. 2	1,365	1.026	14.88	11.96	.43	.65	.20	1.64	80.37	2.89	4.37	1.34	11.02	6.48	1.12	.79	.08	.26	70.53	7.14	23.21	198	.75	174					
3	1,250	1.023	11.49	9.02	.35	.60	.18	1.34	78.50	3.05	5.22	1.57	11.66	7.02	.73	.55	.05	.13	75.45	6.85	17.70	189	.72	77					
4	1,415	1.022	10.49	8.81	.34	.63	.17	.54	84.01	3.24	6.01	1.62	5.15	6.39	.75	.56	.05	.13	74.66	6.66	17.40	156	.67	87					
5	2,010	1.019	16.62	13.46	.48	.75	.22	1.71	80.98	2.89	4.51	1.32	10.29	8.08	1.22	.90	.07	.25	73.77	5.74	20.49	241	.84	71	182.00	11.30	23.10	.12	2.04
6	1,365	1.022	14.52	11.93	.46	.63	.20	1.30	82.15	3.17	4.32	1.38	8.95	7.16	1.04	.79	.06	.19	75.96	5.77	18.26	222	.71	100					
7–8	2,350	1.022	12.06	9.92	.40	.51	.18	1.04	82.33	3.32	4.22	1.49	8.62	5.18	.83	.63	.05	.16	75.91	6.02	19.28	231	.74	91					
Av....	1,393	1.022	13.34	10.85	.41	.63	.19	1.26	81.39	3.09	4.77	1.45	9.48	6.72	.95	.70	.06	.19	74.38	6.36	19.39	206	.74	100	26.00	1.61	3.30	.12	2.04

Nov. 9	1,240	1.022	11.31	9.17	.30	.56	.17	1.11	81.08	2.65	4.95	1.50	9.81	6.12	.83	.67	.04	.12	80.72	4.82	14.46	138	.68	33					
10-11	2,900	1.020	14.49	12.13	.50	.59	.22	1.05	83.70	3.45	4.07	1.52	7.25	6.97	1.00	.74	.05	.21	74.00	5.00	21.00	267	.86	29					
12-13	2,575	1.024	14.04	11.25	.48	.62	.21	1.48	80.13	3.42	4.42	1.50	10.54	8.28	.95	.75	.06	.15	78.94	6.32	15.78	295	.87	91	174.00	10.78	23.85	.11	2.21
14-15	2,490	1.020	11.73	9.90	.36	.60	.20	.67	84.39	3.07	5.11	1.70	5.71	5.85	.79	.62	.04	.13	78.46	5.06	16.45	221	.74	59					
16-17	1,925	1.028	12.00	10.07	..40	.61	.21	.71	83.92	3.33	5.08	1.75	5.92	5.22	.90	.68	.06	.16	75.56	6.67	17.77	258	.74	42					
18-19	2,180	1.025	11.10	9.38	.30	.51	.19	.72	84.50	2.70	4.59	1.71	6.49	6.48	.85	.61	.03	.22	71.76	3.53	25.88	252	.77	17	157.00	9.22	23.30	.11	2.53
20-21	2,500	1.020	10.41	8.51	.55	.51	.16	.68	81.75	5.28	4.90	1.54	6.53	5.89	.80	.60	.04	.16	75.00	5.00	20.00	....	.53	23					
Av....	1,216	1.023	12.15	10.06	.41	.57	.19	.92	82.78	3.41	4.73	1.60	7.46	6.40	.87	.67	.05	.16	76.35	7.20	18.76	204	.74	42	25.46	1.53	3.62	.11	2.3
Nov. 23-24	2,450	1.023	11.91	9.95	.43	.50	.20	.83	83.54	3.61	4.20	1.68	6.97	4.41	.96	.45	.30	.22	46.88	30.54	22.91	120	.79	45					
25-27	2,740	1.023	13.25	10.59	.51	.56	.22	1.37	79.93	3.85	4.23	1.66	10.34	6.88	.94	.70	.04	.20	74.47	4.26	21.27	192	.71	95	144.50	8.90	34.66	.11	3.90
28-29	2,700	1.024	13.41	10.73	.58	.56	.21	1.33	80.02	4.33	4.18	1.57	9.92	7.74	.97	.75	.05	.17	77.32	5.15	17.52	204	.84	33					
Nov. 30 Dec. 1	2,625	1.022	13.35	11.12	.43	.54	.23	1.03	83.28	3.22	4.05	1.73	7.72	6.17	.95	.74	.05	.16	77.90	5.27	16.83	288	.77	25					
Dec. 2-3	2,730	1.023	12.57	10.49	.40	.53	.22	.93	83.47	3.18	4.21	1.75	7.39	7.56	.92	.61	.11	.20	66.30	11.96	21.74	258	.79	23	238.50	14.86	49.45	.16	3.33
4	1,295	1.027	14.22	12.22	.47	.58	.22	.73	85.95	3.30	4.08	1.55	5.12	7.47	1.02	.80	.04	.18	78.43	3.92	17.65	285	.85	20					
5-6	3,030	1.022	12.40	10.60	.43	.57	.19	.61	85.49	3.47	4.59	1.53	4.92	6.91	.97	.69	.04	.24	71.13	4.12	24.75	245	.63	25					
Av....	1,351	1.023	13.02	10.81	.46	.55	.21	.98	83.09	3.56	4.22	1.64	7.48	6.73	.96	.68	.09	.19	70.34	9.32	20.38	227	.77	38	29.46	1.82	6.47	.13	3.62
Dec. 7-8	2,570	1.024	12.80	10.82	.34	.54	.20	.90	84.55	2.65	4.22	1.56	7.02	6.03	.96	.71	.05	.20	73.90	5.25	20.85	198	.75	125					
9-10	2,730	1.025	13.71	11.72	.45	.56	.21	.77	85.50	3.28	4.08	1.53	5.61	7.55	1.01	.77	.06	.18	76.25	5.92	17.83	225	.75	167					
11	1,185	1.027	13.62	11.50	.46	.62	.22	.82	84.43	3.38	4.55	1.62	6.02	6.66	1.08	.84	.03	.21	77.80	2.77	19.43	342	.87	100	121.00	7.87	19.69	.08	2.50
12-13	2,260	1.025	12.63	10.45	.44	.48	.16	1.10	82.74	3.48	3.80	1.27	8.71	5.58	.93	.70	.04	.19	75.25	4.30	20.45	249	.63	23					
14-15	2,610	1.025	12.48	10.62	.32	.57	.20	.77	85.10	2.56	4.57	1.60	6.17	7.24	.94	.69	.05	.20	73.40	5.31	21.29	198	.84	45					
16-17	2,890	1.024	14.55	12.56	.16	.61	.23	.99	86.33	1.10	4.19	1.58	6.80	7.29	1.09	.83	.05	.21	76.15	4.59	19.26	222	.79	13	194.00	12.55	37.80	.18	3.01
18	1,240	1.026	15.24	13.14	.51	.60	.23	.76	86.27	3.35	3.94	1.51	4.93	5.85	1.13	.89	.05	.19	78.75	4.42	16.83	326	.76	17					
Av....	1,290	1.025	13.56	11.54	.38	.59	.21	.87	84.99	2.83	4.19	1.53	6.46	6.60	1.02	.78	.05	.19	75.93	4.65	19.42	249	.77	70	26.25	1.69	4.79	.14	2.76
Jan. 4-5	2,660	1.022	11.37	9.25	.35	.48	.19	1.40	81.35	3.08	4.22	1.67	9.68	8.19	.95	.64	.05	.26	67.37	5.26	27.37	183	.73	83					
6-7	2,760	1.024	14.13	11.68	.44	.60	.22	1.19	82.66	3.11	4.25	1.56	8.42	8.68	1.02	.79	.04	.19	77.45	3.92	18.63	264	.72	143					
8	1,180	1.027	12.39	9.98	.34	.65	.21	1.21	80.55	2.74	5.25	1.69	9.77	7.78	.96	.74	.05	.17	77.07	5.21	17.71	186	.67	66	120.00	8.08	18.78	.08	2.33
9-10	2,450	1.026	13.34	11.07	.39	.60	.21	1.07	82.98	2.92	4.50	1.57	8.03	7.02	.94	.71	.03	.20	75.54	3.19	21.27	243	.82	143					
11-12	2,880	1.024	13.47	10.96	.38	.63	.21	1.29	81.30	2.82	4.67	1.56	9.65	7.96	.95	.77	.02	.16	81.04	2.11	16.85	99	.82	143					
13-14	3,010	1.023	11.99	9.86	.34	.55	.19	1.05	82.19	2.84	4.59	1.58	8.80	9.26	.85	.64	.03	.18	75.28	3.53	21.19	173	.65	77	197.00	13.26	29.30	.14	2.27
15	1,830	1.022	14.07	12.10	.42	.66	.23	.66	85.99	2.98	4.70	1.63	4.69	8.24	1.10	.82	.04	.24	74.53	3.64	21.83	234	.90	25					
16-17	2,100	1.028	12.92	11.02	.34	.62	.19	.75	85.30	2.63	4.81	1.45	5.80	5.44	.90	.69	.05	.16	76.72	5.54	17.74	234	.70	100					
Av....	1,348	1.025	12.96	10.74	.37	.59	.21	1.04	82.79	2.89	4.62	1.59	8.10	7.82	.96	.72	.04	.19	74.62	4.05	20.32	202	.75	98	22.64	1.52	3.43	.11	2.30
Jan. 18-19	3,010	1.022	11.98	10.24	.33	.53	.21	.67	85.45	2.76	4.45	1.74	5.60	7.69	.93	.69	.04	.20	74.20	4.30	21.50	174	.87	77					
20-21	2,510	1.024	13.35	11.09	.37	.55	.20	1.14	83.05	2.77	4.13	1.50	8.55	6.52	.98	.75	.04	.19	76.53	4.08	19.39	222	.64	125					
22	1,860	1.019	12.95	11.10	.36	.60	.21	.68	85.72	2.78	4.64	1.62	5.24	6.86	.90	.72	.04	.14	80.00	4.45	15.55	182	.72	47	147.00	9.71	23.91	.10	2.47
23-24	3,000	1.021	12.18	10.19	.34	.59	.21	.85	83.60	2.87	4.84	1.72	6.97	6.08	.92	.68	.04	.20	73.90	4.35	21.75	222	.75	100					
25-26	3,120	1.023	12.71	10.70	.35	.55	.20	.94	84.00	2.74	4.32	1.57	7.37	9.08	.91	.71	.06	.14	78.00	6.60	15.40	112	.82	33					
27-28	2,750	1.022	13.32	10.96	.38	.59	.21	1.18	82.30	2.85	4.43	1.57	8.85	6.61	.99	.74	.05	.20	74.80	5.00	20.20	246	.78	91	164.00	12.26	23.79	.13	1.93
29	1,650	1.020	13.76	11.73	.46	.54	.23	.80	85.25	3.34	3.93	1.67	5.81	9.16	1.00	.80	.03	.17	80.00	3.00	17.00	224	.85	50					
30-31	2,880	1.022	12.51	10.46	.43	.51	.18	.93	83.61	3.44	4.08	1.44	7.43	6.95	.89	.67	.08	.16	75.25	6.75	18.00	234	.74	111					
Av....	1,484	1.021	12.85	10.81	.38	.56	.21	.89	84.12	2.94	4.35	1.60	6.95	7.37	.94	.72	.04	.17	76.58	4.81	18.59	202	.77	79	22.21	1.57	3.40	.11	2.20

Analytical table in full—Continued.

Control D—Continued.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as.Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c.c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P.c.*	*P.c.*	*P.c.*	*P.c.*	*P.c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P.c.*	*P.c.*	*P.c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1–2	2,700	1.023	12.72	10.54	0.32	0.56	0.19	1.11	82.90	2.51	4.40	1.49	8.70	6.57	0.93	0.73	0.03	0.17	78.50	3.23	18.27	186	0.80	23	188.00	12.38	33.30	0.13	2.69
3–4	2,480	1.024	12.30	10.16	.33	.56	.20	1.05	82.60	2.68	4.55	1.63	8.54	6.75	.87	.68	.03	.16	78.20	3.40	18.40	192	.73	77					
5	1,340	1.023	13.43	11.48	.38	.55	.21	.81	85.47	2.83	4.10	1.56	6.04	7.34	1.05	.80	.04	.21	76.20	3.80	20.00	246	.76	77					
6–7	2,560	1.025	13.56	11.32	.38	.54	.20	1.12	83.50	2.80	3.98	1.47	8.25	7.56	.99	.76	.04	.19	76.72	4.08	19.20	243	.77	77					
Av....	1,297	1.024	13.00	10.87	.35	.55	.20	1.02	83.62	2.70	4.26	1.54	7.88	7.05	.96	.74	.04	.18	77.40	3.63	18.97	214	.76	64	26.85	1.77	4.75	.13	2.69
Feb. 8	1,250	1.016	6.92	5.25	.32	.47	.11	.77	75.83	4.65	6.80	1.59	11.13	3.92	.45	.29	.04	.12	64.45	8.89	26.66	201	.54	25	129.50	9.66	16.52	.24	1.71
9	1,840	1.014	6.70	4.97	.37	.59	.14	.63	74.19	5.52	8.81	2.08	9.40	6.13	.52	.31	.02	.19	59.60	3.85	36.55	147	.55	27					
10	1,670	1.013	6.30	4.38	.30	.50	.12	1.00	69.50	4.76	7.94	1.90	15.90	4.54	.45	.27	.04	.14	60.00	8.90	31.10	134	.47	5					
11	1,485	1.013	5.14	3.55	.39	.54	.09	.57	66.07	7.59	10.50	1.75	11.09	3.79	.41	.24	.04	.13	58.55	9.75	31.70	172	.50	25					
12	1,050	1.014	4.28	2.77	.25	.47	.09	.70	64.73	5.84	10.99	2.10	16.34	2.65	.34	.21	.03	.10	61.75	8.82	29.43	128	.40	25					
13	1,220	1.015	5.83	3.69	.24	.55	.11	1.24	63.25	4.14	9.42	1.89	21.30	3.18	.41	.24	.05	.12	58.55	12.20	29.25	127	.49	36					
14	1,000	1.013	5.04	3.56	.31	.46	.09	.62	70.63	6.15	9.13	1.79	12.30	2.70	.37	.15	.11	.11	40.50	29.75	29.75	150	.46	28					
Av....	1,359	1.014	5.74	4.02	.31	.51	.11	.79	69.60	5.52	9.08	1.87	13.92	3.85	.42	.24	.05	.13	57.63	11.73	30.63	151	.49	24	18.50	1.38	2.36	.24	1.71
Feb. 15–16	2,600	1.026	11.43	9.55	.35	.50	.22	.81	83.57	3.06	4.37	1.92	7.08	8.20	.87	.65	.04	.18	74.70	4.60	20.70	168	.77	17	159.50	10.74	24.41	.13	2.28
17–18	2,120	1.028	12.15	10.02	.39	.55	.20	.99	82.50	3.21	4.53	1.64	8.12	7.83	.91	.68	.06	.17	74.70	6.60	18.70	54	.65	20					
19	1,040	1.026	12.45	10.49	.42	.67	.18	.69	84.25	3.38	5.38	1.45	5.54	5.00	.96	.71	.05	.20	73.95	5.20	20.85	228	.66	42					
20–21	2,020	1.025	10.92	8.88	.34	.56	.19	.95	81.33	3.11	5.12	1.74	8.70	6.26	.74	.55	.03	.16	74.35	4.05	21.60	222	.74	67					
22–23	2,260	1.027	13.53	11.45	.42	.67	.22	.77	84.62	3.10	4.95	1.63	5.70	7.52	.99	.74	.05	.20	74.75	5.05	20.20	219	.77	72	176.50	11.68	48.50	.12	4.15
24–25	2,700	1.025	13.89	11.94	.36	.62	.20	.77	85.96	2.59	4.47	1.44	5.54	8.46	1.01	.79	.05	.17	78.25	4.95	16.80	195	.77	42					
26	1,020	1.029	12.92	11.13	.32	.53	.19	.75	86.15	2.48	4.10	1.47	5.80	6.93	.96	.72	.04	.20	75.00	4.17	20.83	192	.64	17					
27–28	3,000	1.023	13.02	11.03	.40	.56	.22	.81	84.72	3.07	4.30	1.69	6.22	7.20	.97	.71	.05	.21	73.20	5.14	21.66	243	.78	31					
Av....	1,197	1.026	12.54	10.56	.37	.58	.20	.82	84.14	3.00	4.65	1.62	6.59	7.18	.93	.69	.05	.19	74.86	4.97	20.17	190	.72	38	24.00	1.60	5.20	.12	3.21

Mar. 1–2	2,350	1.026	13.44	11.13	.33	.60	.23	1.15	82.81	2.45	4.47	1.71	8.56	7.24	.94	.70	.03	.21	74.45	3.19	22.36	207	.77	29					
3–4	2,470	1.024	11.19	9.42	.35	.64	.21	.57	84.17	3.13	5.72	1.88	5.10	7.60	.85	.64	.04	.17	75.30	4.70	20.00	198	.68	25	210.50	13.07	35.80	.14	2.47
5	1,180	1.031	13.83	11.56	.29	.65	.23	1.10	83.63	2.10	4.66	1.66	7.95	9.18	.99	.77	.06	.16	77.78	6.06	16.16	126	.75	25					
6–7	2,200	1.024	11.96	9.84	.42	.67	.19	.84	82.27	3.51	5.60	1.59	7.03	5.08	.85	.65	.04	.16	76.46	4.70	18.84	258	.69	72					
Av....	1,171	1.026	12.60	10.49	.35	.65	.21	.91	83.22	2.79	5.11	1.71	7.16	7.27	.91	.69	.04	.18	75.99	4.66	19.34	197	.72	38	30.07	1.86	5.11	.14	2.74
Mar. 8–9	2,210	1.025	9.99	8.47	.29	.52	.20	.51	84.80	2.90	5.20	2.00	5.10	5.76	.91	.59	.04	.28	64.82	4.40	30.78	144	.71	72					
10–11	2,300	1.028	12.93	10.53	.47	.62	.23	1.08	81.45	3.63	4.79	1.78	8.35	6.88	1.08	.70	.05	.33	64.81	4.63	30.56	288	1.07	105					
12	1,310	1.023	12.38	10.36	.46	.56	.21	.79	83.68	3.72	4.52	1.70	6.48	7.88	1.03	.66	.05	.32	64.10	4.85	31.05	270	.85	32	205.00	12.84	22.50	.15	1.75
13–14	2,380	1.023	11.43	9.30	.45	.65	.18	.85	81.36	3.93	5.69	1.58	7.44	6.57	.94	.60	.04	.30	63.85	4.25	31.90	207	.82	63					
15	1,425	1.024	11.04	9.05	.28	.57	.21	.93	81.98	2.54	5.16	1.90	8.42	5.62	1.00	.67	.04	.29	67.00	4.00	29.00	150	.81	56	48.00	2.97	......	.26	.....
Av....	1,203	1.025	11.55	9.54	.39	.58	.21	.83	82.65	3.34	5.07	1.79	7.16	6.54	.99	.64	.04	.30	64.92	4.42	30.66	212	.85	66	31.62	1.97	3.21	.21	1.75

Analytical table in full—Continued.

Control E.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	Feces N / Urine N.	Feces fat / Feces N.
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,420	1.017	11.16	9.22	0.44	0.58	0.14	0.78	82.61	3.94	5.19	1.25	6.99	5.04	0.78	0.62	0.05	0.12	79.48	6.41	15.38	312	0.95	59					
21	1,480	1.020	15.12	12.84	.38	.64	.21	1.05	84.92	2.51	4.23	1.38	6.95	4.68	1.13	.91	.05	.18	80.53	4.42	15.92	276	1.11	100	41.40	2.99	8.04	0.07	2.69
22	1,160	1.023	15.44	12.76	.56	.59	.20	1.33	82.64	3.63	3.82	1.29	8.62	5.40	1.04	.81	.03	.20	77.87	2.88	19.23	393	1.00	91					
Av....	1,353	1.020	13.91	11.61	.46	.60	.28	1.05	83.39	3.36	4.41	1.31	7.52	5.04	.98	.78	.04	.16	79.29	4.57	16.84	327	1.02	83	13.80	.99	2.68	.07	2.69
Oct. 23	1,140	1.025	13.26	10.76	.46	.59	.18	1.27	81.15	3.47	4.45	1.35	9.57	6.03	.92	.71	.05	.16	77.17	5.43	17.39	345	.97	87					
24	1,080	1.027	13.47	11.71	.38	.59	.18	.61	86.93	2.82	4.38	1.33	4.52	4.41	1.00	.79	.05	.16	79.00	5.00	16.09	249	.87	120					
25	1,550	1.018	11.47	9.58	.37	.51	.15	.86	83.53	3.24	4.44	1.30	7.49	4.09	.79	.58	.02	.19	73.42	2.53	24.06	198	.84	111					
26	780	1.028	9.87	8.24	.40	.51	.13	.59	83.49	4.05	5.17	1.32	5.96	4.01	.82	.61	.05	.16	74.39	6.10	19.51	255	.80	100	82.80	5.99	16.08	.08	2.69
27	1,400	1.019	11.37	9.30	.36	.56	.15	1.00	81.79	3.17	4.92	1.32	8.79	5.44	.85	.63	.05	.18	74.11	5.88	21.17	213	.81	50					
28	1,340	1.023	11.67	9.46	.41	.62	.15	1.03	81.05	3.51	5.31	1.29	8.83	6.88	.97	.59	.08	.30	60.80	8.24	30.91	270	1.00	91					
29	1,670	1.017	12.99	10.74	.47	.62	.17	.99	82.68	3.62	4.77	1.31	7.62	6.26	.92	.66	.06	.21	71.74	6.52	22.83	321	.94	71					
30	1,720	1.018	11.42	9.52	.37	.53	.14	.86	83.36	3.24	4.64	1.23	7.53	5.47	.83	.64	.05	.15	77.10	6.02	18.07	261	.98	33	159.50	9.39	33.86	.18	3.61
Oct. 31 / Nov. 1	3,340	1.018	12.66	10.34	.40	.56	.15	1.21	81.67	3.16	4.42	1.19	9.56	4.71	.85	.63	.12	.11	74.11	14.11	13.05	314	.97	77					
Av....	1,402	1.021	12.02	9.96	.40	.56	.15	.94	82.75	3.36	4.72	1.25	7.76	5.25	.88	.65	.06	.18	73.54	6.65	20.33	269	.91	82	24.23	1.54	5.09	.13	3.15
Nov. 2	980	1.025	10.98	9.13	.41	.53	.17	.74	83.13	3.73	4.83	1.55	6.75	3.94	.89	.59	.06	.24	66.29	6.74	26.97	222	.86	143					
3	1,215	1.020	10.44	8.11	.47	.60	.14	1.12	77.67	4.50	5.75	1.34	10.72	5.26	.70	.51	.04	.16	72.74	5.71	22.85	204	.81	33					
4	1,900	1.019	11.06	9.40	.40	.61	.17	.48	84.99	3.62	5.52	1.54	4.34	5.83	.80	.59	.06	.15	73.76	7.50	18.75	236	.96	36	160.00	9.76	17.25	.12	1.77
5	1,220	1.024	12.17	9.54	.54	.63	.16	1.30	78.39	4.44	5.15	1.31	10.68	6.48	.91	.67	.04	.20	73.62	4.39	21.97	216	.93	77					
6	1,400	1.019	12.60	9.89	.45	.60	.17	1.49	78.50	3.57	4.76	1.35	11.82	6.44	.95	.71	.05	.18	74.73	5.26	18.95	162	.76	167					
7–8	2,890	1.017	9.75	7.84	.37	.45	.13	.96	80.40	3.79	4.62	1.33	9.84	4.32	.72	.51	.06	.15	70.82	8.33	20.83	216	.67	87					
Av....	1,372	1.021	11.17	8.98	.44	.57	.16	1.01	80.51	3.94	5.10	1.40	9.02	5.38	.83	.59	.05	.18	71.99	6.32	21.72	209	.83	90	22.85	1.39	2.46	.12	1.77

Nov. 9	855	1.026	13.80	11.25	.54	.68	.16	1.17	81.52	3.91	4.93	1.16	8.48	3.56	.96	.78	.06	.12	81.24	6.25	12.20	378	1.10	167					
10–11	2,390	1.022	11.85	10.13	.40	.55	.18	.59	85.48	3.38	4.64	1.51	4.98	5.26	.80	.55	.06	.19	68.75	7.50	23.75	252	.96	95					
12–13	2,980	1.019	10.68	8.40	.42	.53	.15	1.18	78.67	3.93	4.96	1.40	11.05	6.88	.76	.56	.05	.15	73.67	6.58	19.73	264	.88	91	136.50	8.41	20.20	.09	2.54
14–15	3,125	1.017	12.12	9.35	.43	.53	.17	1.64	77.14	3.55	4.37	1.40	13.53	5.44	.82	.59	.05	.18	71.94	6.10	21.94	256	.87	91					
16–17	2,850	1.020	11.10	9.26	.40	.52	.16	.78	83.42	3.60	4.68	1.44	6.85	4.36	.82	.60	.06	.16	73.16	7.32	19.51	276	.85	91					
18–19	2,230	1.021	9.98	8.24	.34	.49	.15	.76	82.56	3.41	4.91	1.50	7.62	4.72	.74	.50	.04	.20	67.56	5.41	27.02	258	.79	50	134.00	7.92	28.01	.13	3.40
20, 22	2,460	1.020	7.77	6.38	.34	.53	.11	.41	82.12	4.38	6.80	1.42	5.28	4.18	.62	.42	.04	.17	67.74	6.45	27.42	66	.60	50					
Av....	1,269	1.021	11.04	9.00	.41	.55	.15	.93	81.56	3.74	5.04	1.40	8.26	4.91	.79	.56	.05	.17	72.01	6.51	21.65	250	.86	91	20.80	1.25	3.70	.11	2.97
Nov. 23–24	1,900	1.024	10.71	8.79	.42	.53	.16	.81	82.07	3.92	4.95	1.49	7.56	4.41	.86	.60	.05	.21	69.75	5.81	24.41	264	.92	63					
25, 27	2,580	1.022	10.17	8.42	.34	.47	.17	.75	82.69	3.34	4.93	1.67	7.37	6.57	.80	.48	.12	.20	60.00	15.00	25.00	189	.75	91	73.00	4.26	16.20	.06	3.80
28–29	3,640	1.018	13.35	10.92	.51	.58	.20	1.14	81.80	3.82	4.34	1.50	8.54	7.15	.95	.70	.05	.20	73.68	5.26	21.05	328	.94	18					
Nov. 30 } Dec. 1	2,010	1.027	11.52	9.70	.37	.48	.18	.79	80.40	3.21	4.17	1.56	10.66	4.68	.83	.62	.05	.16	74.70	6.03	19.27	288	.87	83					
Dec. 2–3	3,650	1.016	10.18	8.61	.29	.46	.18	.64	84.55	2.85	4.51	1.80	6.29	7.11	.75	.52	.04	.19	69.35	5.34	25.31	465	.72	19	185.00	10.70	44.20	.13	4.13
4	1,480	1.024	14.50	12.01	.59	.66	.21	1.03	82.83	4.07	4.55	1.45	7.10	6.57	.99	.71	.08	.20	71.72	8.08	20.20	510	1.29	71					
5–6	3,020	1.017	8.79	7.42	.28	.43	.14	.52	84.42	3.18	4.89	1.59	5.92	8.51	.67	.44	.04	.19	65.75	5.89	28.38	154	.57	29					
Av....	1,406	1.021	11.32	9.41	.40	.52	.18	.81	82.68	3.48	4.62	1.58	7.63	6.43	.84	.58	.06	.19	69.28	7.34	23.35	314	.86	53	19.84	1.15	4.64	.09	3.97
Dec. 7–8	2,780	1.025	14.22	11.82	.47	.65	.21	1.07	83.15	3.30	4.57	1.47	7.51	5.58	1.09	.80	.07	.22	73.40	6.42	20.18	300	1.01	125					
9–10	3,820	1.020	12.49	10.61	.38	.55	.18	.77	84.95	3.04	4.40	1.44	6.17	7.68	1.00	.71	.05	.24	71.00	5.00	24.00	233	.86	Tr.	155.50	9.72	30.84	.11	3.17
11	1,660	1.021	12.90	10.99	.43	.46	.18	.84	85.20	3.33	3.56	1.39	6.52	7.57	1.00	.78	.05	.17	78.00	5.00	17.00	382	1.03	17					
12–13	3,280	1.017	9.84	8.16	.34	.45	.13	.76	82.84	3.46	4.68	1.32	7.70	5.76	.74	.53	.04	.17	71.60	5.40	23.00	203	.70	14					
14–15	2,380	1.026	11.82	9.82	.35	.65	.18	.82	83.08	2.96	5.50	1.52	6.94	5.44	.93	.67	.04	.22	72.05	4.30	23.65	258	.90	100					4.00
16–17	2,400	1.023	10.62	8.86	.29	.48	.17	.82	83.43	2.73	4.52	1.60	7.72	6.21	.80	.60	.04	.16	75.00	5.00	20.00	174	.71	23	146.50	8.43	33.70	.12	
18	2,175	1.019	17.53	14.98	.52	.74	.23	1.06	85.45	2.97	4.22	1.31	6.05	7.64	1.25	.93	.07	.25	74.40	5.60	20.00	457	1.44	Tr.					
Av....	1,541	1.021	12.77	10.75	.39	.57	.18	.88	84.01	3.11	4.49	1.43	6.94	6.55	.97	.72	.05	.20	73.63	5.24	21.12	258	.95	39	25.16	1.51	5.38	.11	3.59
Jan. 4–5	2,025	1.027	11.82	9.41	.37	.57	.20	1.27	79.60	3.13	4.82	1.69	10.75	6.30	.86	.62	.06	.18	72.09	6.98	20.93	252	.90	125					
6–7	3,250	1.021	11.94	9.93	.34	.51	.20	.96	83.17	2.85	4.27	1.67	8.04	8.38	.82	.63	.04	.15	76.83	4.88	18.29	273	1.04	125	141.50	8.30	35.99	.09	4.33
8	1,900	1.022	14.44	12.02	.48	.71	.22	1.01	83.25	3.32	4.92	1.52	6.99	9.06	1.03	.81	.12	.10	78.65	11.65	9.70	414	1.33	35					
9–10	3,260	1.018	11.64	9.57	.34	.54	.19	1.00	82.22	2.92	4.64	1.63	8.50	5.70	.78	.60	.02	.16	76.93	2.56	20.51	238	.73	167					
11–12	2,400	1.025	12.38	10.40	.34	.59	.18	.87	84.02	2.75	4.75	1.46	7.02	5.58	.88	.69	.04	.15	78.42	4.55	17.03	261	.98	100					
13–14	3,270	1.020	11.20	9.33	.30	.53	.17	.87	83.33	2.68	4.69	1.52	7.78	7.73	.77	.56	.05	.16	72.73	6.49	20.78	226	.96	41					
15	1,730	1.021	11.45	9.62	.28	.56	.19	.80	84.02	2.44	4.89	1.66	6.99	8.10	.88	.66	.05	.17	75.00	5.69	19.31	201	.99	63	198.00	11.40	39.40	.13	3.45
16–17	2,690	1.023	12.66	10.91	.34	.52	.17	.72	86.18	2.69	4.10	1.34	5.69	5.80	.88	.70	.05	.13	79.60	5.64	14.76	339	1.03	125					
Av....	1,466	1.022	12.19	10.15	.35	.57	.19	.94	83.22	2.85	4.63	1.56	7.72	7.08	.86	.66	.05	.15	76.28	6.06	17.66	276	.99	98	24.25	1.40	5.38	.11	3.89
Jan. 18–19	2,650	1.021	10.10	8.58	.30	.53	.16	.53	84.95	3.00	5.24	1.57	5.24	6.34	.74	.55	.05	.14	74.35	6.73	18.92	234	.95	167					
20–21	2,600	1.024	12.51	10.28	.37	.54	.19	1.13	82.15	2.96	4.33	1.52	9.04	6.62	.89	.68	.05	.16	76.39	5.60	18.00	273	.89	100					
22	1,330	1.025	12.12	9.88	.29	.56	.19	1.20	81.60	2.39	4.62	1.57	9.82	7.15	.87	.66	.06	.15	75.80	6.90	17.30	228	.95	35	200.50	10.46	85.11	.13	8.13
23–24	2,700	1.021	10.95	9.04	.40	.58	.17	.76	82.52	3.65	5.38	1.55	6.90	4.90	.79	.60	.04	.15	75.93	5.07	19.00	270	.87	83					
25–26	2,520	1.024	11.07	9.53	.31	.51	.17	.55	86.10	2.80	4.60	1.53	4.97	5.98	.82	.63	.05	.14	76.80	6.12	17.08	122	.90	100					
27–28	4,000	1.017	10.94	9.04	.32	.58	.18	.82	82.63	2.93	5.30	1.65	7.49	8.34	.76	.60	.04	.12	79.00	5.26	15.74	240	.92	150					
29	1,570	1.021	12.86	10.73	.47	.56	.18	.92	83.45	3.65	4.35	1.40	7.15	7.02	.93	.68	.10	.15	73.20	10.75	16.05	390	1.05	77	166.00	8.59	40.01	.14	4.66
30–31	3,720	1.017	11.76	9.74	.37	.50	.16	.99	82.85	3.14	4.25	1.36	8.40	6.25	.92	.62	.06	.24	67.40	6.52	26.08	232	.86	150					
Av....	1,506	1.021	11.54	9.60	.35	.54	.18	.61	83.28	3.07	4.76	1.52	7.39	6.58	.84	.63	.06	.15	74.88	6.62	18.52	248	.92	108	26.17	1.36	8.93	.13	6.39

Analytical table in full—Continued.

Control E—Continued.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2)	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2)	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*
Feb. 1–2	2,360	1.023	11.99	10.15	0.35	0.50	0.16	0.83	81.66	2.92	4.17	1.33	6.92
3–4	3,000	1.020	11.45	9.46	.35	.51	.17	.93	82.63	3.05	4.72	1.48	8.12
5	1,180	1.025	10.61	8.67	.35	.49	.18	.92	81.83	3.30	4.62	1.69	8.56
6–7	2,600	1.020	11.43	9.61	.32	.51	.16	.83	84.10	2.80	4.46	1.40	7.24
Av....	1,306	1.022	11.37	9.47	.31	.51	.17	.88	83.30	3.02	4.49	1.48	7.71
Feb. 8	......	......	......	......	......	......	......	......	......	......	......	......	......
9	1,970	1.012	5.72	4.12	.33	.37	.12	.78	72.00	5.77	6.49	2.10	13.64
10	1,890	1.013	7.22	4.71	.49	.61	.12	1.29	65.23	6.79	8.45	1.66	17.87
11	1,900	1.011	5.70	3.88	.38	.52	.11	.81	68.05	6.67	9.15	1.93	14.20
12	1,170	1.013	4.54	2.89	.33	.42	.09	.81	63.65	7.27	9.25	1.98	17.85
13	1,200	1.016	5.13	3.03	.33	.47	.10	1.20	59.07	6.43	9.16	1.95	23.39
14	1,780	1.011	4.76	3.09	.36	.48	.10	.67	65.75	7.66	10.21	2.13	14.25
Av....	1,652	1.013	5.50	3.62	.37	.61	.11	.93	65.62	6.77	8.78	1.96	16.85
Feb. 15–16	2,020	1.026	9.66	8.03	.37	.56	.19	.51	83.12	3.83	5.80	1.97	5.28
17–18	2,870	1.022	10.19	8.57	.37	.50	.16	.89	81.70	3.53	4.77	1.52	8.48
19	1,235	1.023	10.70	8.60	.46	.61	.17	.86	80.37	4.30	5.70	1.59	8.04
20–21	1,500	1.031	11.62	9.59	.39	.59	.18	.87	82.55	3.35	5.16	1.46	7.48
22–23	1,710	1.031	11.36	9.76	.34	.58	.19	.49	85.91	2.99	5.11	1.68	4.31
24–25	3,430	1.019	12.07	10.23	.42	.57	.19	.66	84.65	3.48	4.73	1.57	5.47
26	1,600	1.022	12.95	10.98	.42	.53	.20	.82	84.80	3.24	4.09	1.54	6.33
27–28	2,300	1.025	12.42	10.51	.38	.55	.22	.73	84.86	3.06	4.43	1.77	5.88
Av....	1,190	1.025	11.41	9.51	.39	.56	.19	.73	83.49	3.47	4.97	1.64	6.41

Date.	Urine. Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$	$\frac{\text{Feces fat}}{\text{Feces N}}$
	Gms.	*Gm.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1–2	6.21	0.88	0.68	0.05	0.15	77.27	5.68	17.05	270	0.97	100	183.00	10.06	42.32	0.12	4.21
3–4	7.74	.83	.60	.04	.19	72.27	4.83	22.90	258	.89	111					
5	6.93	.89	.64	.05	.20	71.88	5.62	22.50	246	.88	50					
6–7	5.55	.87	.64	.06	.17	73.55	6.90	19.55	210	.74	100					
Av....	6.61	.87	.64	.05	.18	73.74	5.76	20.50	246	.87	90	26.14	1.43	6.04	.12	4.21
Feb. 8	......	......	......	......	......	......	......	......	......	......	......	136.00	9.40	25.10	.24	2.67
9	5.85	.42	.24	.03	.15	57.16	7.14	35.70	380	.50	12					
10	5.10	.51	.31	.05	.15	60.80	9.80	29.40	219	.74	21					
11	3.59	.46	.28	.04	.14	60.85	8.70	30.45	190	.60	37					
12	2.66	.35	.21	.03	.11	60.00	8.56	31.44	213	.56	10					
13	3.78	.38	.23	.04	.11	60.53	10.52	28.95	194	.50	10					
14	3.15	.39	.23	.03	.13	59.00	7.70	33.30	168	.49	5					
Av....	4.02	.42	.25	.04	.13	59.72	8.74	31.54	227	.56	16	19.43	1.34	3.58	.24	2.67
Feb. 15–16	6.04	.76	.55	.06	.15	72.35	7.90	19.75	198	.75	28	142.50	8.69	34.85	.11	4.01
17–18	8.28	.74	.54	.04	.16	73.00	5.40	21.60	144	.78	41					
19	6.08	.87	.62	.05	.20	71.25	5.75	23.00	300	.73	28					
20–21	4.35	.78	.59	.06	.13	75.65	7.70	16.65	274	.82	23					
22–23	4.77	.82	.63	.06	.13	76.80	7.32	15.88	240	.87	25	201.00	10.79	64.40	.12	5.99
24–25	7.46	.87	.65	.07	.15	74.70	8.05	17.25	260	.81	33					
26	7.15	.88	.71	.02	.15	80.70	2.27	17.03	298	1.00	28					
27–28	5.85	.88	.64	.05	.19	72.72	5.68	21.60	276	.98	39					
Av....	6.25	.83	.62	.05	.16	74.65	6.26	19.09	249	.84	31	24.53	1.39	7.09	.11	5.00

Mar. 1-2	2,100	1.028	12.96	10.82	.43	.61	.23	.87	83.49	3.31	4.70	1.77	6.73	6.30	.87	.66	.05	.16	75.90	5.72	18.38	315	.92	71	183.00	10.03	40.65	.10	4.06
3-4	3,090	1.021	11.96	10.32	.36	.60	.24	.44	86.29	3.01	5.02	2.01	3.67	6.62	.87	.66	.05	.16	75.90	5.72	18.38	222	.93	25					
5	1,850	1.023	14.14	11.97	.43	.62	.22	.90	84.64	3.04	4.39	1.56	6.37	8.94	1.06	.83	.06	.17	78.30	5.66	16.04	296	1.11	63					
6-7	3,000	1.020	13.02	10.57	.44	.62	.18	1.21	81.19	3.38	4.76	1.38	9.29	6.03	.87	.66	.06	.15	75.85	6.90	17.25	330	1.04	39					
Av....	1,434	1,023	13.02	10.92	.40	.61	.22	.86	83.90	3.19	4.72	1.68	6.51	6.97	.92	.70	.06	.26	76.49	6.00	17.50	291	1.00	49	26.15	1.43	5.80	.10	4.06
Mar. 8-9	2,310	1.025	10.56	8.74	.38	.56	.18	.70	82.79	3.59	5.30	1.70	6.62	5.26	.93	.61	.06	.26	65.60	6.44	27.96	216	.86	45	154.50	8.72	30.52	.10	3.48
10-11	3,510	1.019	12.60	10.17	.47	.66	.20	1.10	80.71	3.73	5.24	1.59	8.73	6.90	1.02	.67	.06	.29	65.70	5.88	28.44	284	1.02	67					
12	1,685	1.021	12.33	10.31	.50	.60	.19	.73	83.61	4.06	4.87	1.54	5.92	7.30	1.08	.71	.05	.32	65.72	4.63	29.65	293	1.05	25					
13-14	3,160	1.022	12.82	10.42	.44	.60	.19	1.17	81.29	3.43	4.68	1.48	9.12	6.92	1.03	.68	.06	.29	66.03	5.82	28.15	288	1.03	100					
15	1,630	1.019	10.46	8.57	.27	.58	.17	.87	81.94	2.58	5.54	1.62	8.32	9.10	.86	.56	.04	.26	65.11	4.65	30.24	144	.75	10	50.00	2.36	.....	.22	.....
Av....	1,537	1.021	11.75	9.64	.41	.60	.19	.91	82.07	3.48	5.13	1.59	7.74	7.07	.98	.65	.05	.28	65.63	5.48	28.89	245	.94	49	25.56	1.38	4.36	.16	3.48

Analytical table in full—Continued.

Subject 1.

Date.	Urine. Volume.	Urine. Specific gravity.	Urine nitrogen. Total (N_2).	Urine nitrogen. Urea (N_2).	Urine nitrogen. Ammonia (N_2).	Urine nitrogen. Kreatinin (N_2).	Urine nitrogen. Uric acid (N_2).	Urine nitrogen. Rest (N_2).	Per cent of total nitrogen. Urea.	Per cent of total nitrogen. Ammonia.	Per cent of total nitrogen. Kreatinin.	Per cent of total nitrogen. Uric acid.	Per cent of total nitrogen. Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Urine sulphur. Inorganic (S).	Urine sulphur. Ethereal (S).	Urine sulphur. Neutral (S).	Per cent of total sulphur. Inorganic.	Per cent of total sulphur. Ethereal.	Per cent of total sulphur. Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Feces. Nitrogen (N_2).	Feces. Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,320	1.020	14.91	12.51	0.48	0.71	0.20	1.04	83.79	3.21	4.72	1.34	6.95	5.76	0.99	0.76	0.04	0.19	76.76	4.04	19.19	306	0.98	16	29.37 (Oct. 20–22)	1.93	5.28	0.01	2.73
21	1,210	1.022	13.96	11.25	.30	.73	.23	1.45	80.63	2.15	5.23	1.61	10.38	6.12	1.03	.80	.06	.18	77.67	5.82	17.47	198	1.07	83					
22	1,150	1.024	15.12	12.40	.50	.75	.25	1.22	81.98	3.31	4.95	1.66	8.12	5.04	1.14	.84	.03	.26	73.68	2.65	22.80	372	1.07	20					
Av....	1,233	1.022	14.67	12.05	.43	.73	.23	1.24	82.13	2.89	4.96	1.55	8.48	5.64	1.05	.80	.04	.21	76.04	4.17	19.82	292	1.01	39	9.79	.64	1.76	.04	2.73
Oct. 23	1,040	1.028	14.48	11.72	.52	.66	.23	1.35	80.94	3.59	4.56	1.59	9.32	5.94	1.16	.88	.06	.22	75.00	5.18	18.97	405	1.08	31	58.14 (Oct. 23–28)	3.85	10.56	.04	2.74
24	1,300	1.024	14.69	12.40	.40	.73	.21	.95	84.44	2.72	4.97	1.43	6.44	5.26	1.08	.80	.05	.22	74.07	4.63	20.37	279	.88	63					
25	1,320	1.020	12.00	9.83	.46	.69	.22	.80	81.91	3.83	5.75	1.83	6.66	5.40	.87	.58	.05	.25	66.67	5.74	28.74	288	.85	100					
26	1,040	1.026	12.80	10.53	.51	.68	.21	.87	82.26	3.98	5.31	1.64	6.80	5.31	1.10	.82	.04	.24	74.55	3.62	21.82	225	.81	50					
27	1,190	1.023	12.91	10.54	.47	.69	.19	1.02	81.64	3.64	5.62	1.47	7.91	5.67	.93	.71	.05	.17	76.34	5.37	18.28	267	.84	56					
28	1,160	1.024	13.47	11.02	.50	.75	.19	1.01	81.82	3.71	5.57	1.41	7.49	5.67	1.01	.64	.05	.32	63.38	4.95	31.68	402	1.00	83					
29	1,410	1.021	13.92	11.29	.44	.74	.20	1.25	81.10	3.16	5.31	1.44	8.98	7.24	.94	.67	.08	.18	71.17	8.51	19.15	300	1.04	87	141.00 (Oct. 29–Nov. 1)	9.12	27.20	.17	2.98
30	1,280	1.025	14.31	11.53	.44	.72	.20	1.42	80.57	3.07	5.03	1.40	9.92	5.89	1.05	.79	.07	.19	75.24	6.66	18.52	312	1.09	77					
Oct. 31, Nov. 1	2,250	1.023	10.74	8.75	.52	.58	.17	.72	81.43	4.84	5.40	1.58	6.70	5.49	.73	.52	.04	.17	71.23	5.48	23.29	282	.76	77					
Av....	1,199	1.024	13.26	10.85	.47	.69	.20	1.04	81.79	3.61	5.28	1.53	7.80	5.76	.98	.71	.05	.21	71.96	5.57	22.31	307	.92	69	19.91	1.29	3.77	.10	2.86
Nov. 2	1,210	1.025	11.99	10.18	.35	.71	.21	.54	84.90	2.92	5.92	1.75	4.50	6.79	.91	.66	.06	.17	73.19	6.59	18.68	210	.86	71	155.50 (Nov. 2–8)	10.31	25.10	.11	2.43
3	1,020	1.025	12.21	9.64	.47	.75	.18	1.17	78.95	3.85	6.14	1.47	9.57	4.95	.93	.64	.04	.25	74.19	4.30	21.30	264	.74	63					
4	1,030	1.025	12.60	10.32	.41	.73	.20	.94	81.90	3.26	5.79	1.58	7.46	4.82	.96	.69	.05	.22	71.87	5.20	22.91	279	.82	77					
5	1,315	1.025	13.86	10.99	.47	.67	.23	1.50	79.30	3.39	4.83	1.63	10.82	6.66	1.03	.71	.05	.26	68.93	4.85	25.24	240	.91	67					
6	1,340	1.022	12.80	10.24	.47	.65	.21	1.23	80.00	3.67	5.07	1.64	9.61	6.57	.95	.68	.07	.20	71.58	7.36	21.05	243	.76	83					
7–8	2,000	1.026	12.75	10.19	.52	.67	.20	1.17	79.92	4.07	5.25	1.56	9.17	4.86	.91	.66	.06	.19	68.93	4.85	25.24	294	.81	71					
Av....	1,131	1.024	12.70	10.26	.45	.69	.20	1.09	80.83	3.52	5.50	1.60	8.52	5.77	.95	.67	.05	.22	71.45	5.52	22.40	255	.82	72	22.21	1.47	3.58	.11	2.43

Nov. 9	935	1.027	12.38	9.81	.42	.68	.19	1.25	79.48	3.39	5.49	1.53	10.09	....	.96	.68	.06	.21	70.84	6.10	21.89	312	.84	50	129.00	8.67	21.71	.09	2.51
10-11	2,400	1.025	14.31	11.78	.43	.63	.23	1.24	82.32	3.00	4.40	1.61	8.66	5.76	1.06	.77	.06	.24	72.62	5.66	22.64	246	.93	77					
12-13	2,500	1.026	13.14	10.90	.53	.64	.21	.86	82.94	4.03	4.87	1.59	6.54	7.78	1.03	.75	.05	.23	72.81	4.85	22.33	366	.99	25					
14-15	2,200	1.027	13.65	11.23	.44	.68	.20	1.10	82.26	3.22	4.98	1.47	8.66	5.53	.99	.71	.06	.22	71.72	6.06	22.22	327	.84	71					
16-17	2,260	1.026	12.42	10.16	.46	.68	.20	.92	81.79	3.70	5.47	1.61	7.41	5.89	.92	.65	.08	.20	70.66	8.69	21.74	216	.78	42	170.00	10.20	24.15	.12	2.37
18-19	2,410	1.026	13.02	10.13	.34	.71	.22	1.62	77.80	2.61	5.45	1.69	12.44	6.52	.94	.70	.05	.19	74.47	5.32	20.22	195	.79	23					
20, 22	3,059	1.024	14.04	11.47	.55	.68	.21	1.13	81.69	3.92	4.84	1.50	8.05	7.78	1.01	.68	.04	.29	67.33	3.96	28.71	296	.81	42					
Av....	1,212	1.026	13.28	10.79	.47	.67	.21	1.16	81.18	3.41	5.07	1.57	8.75	5.61	.99	.70	.06	.23	71.49	5.66	22.82	278	.83	47	23.00	1.45	3.52	.10	2.44
Nov. 23-24	2,075	1.024	13.23	11.03	.52	.66	.21	.81	83.36	3.93	4.98	1.58	6.21	5.58	1.00	.73	.07	.20	73.00	7.00	20.00	195	.75	25	136.50	7.91	27.51	.09	3.48
25, 27	2,600	1.027	13.15	10.33	.59	.82	.24	1.17	78.56	4.49	6.24	1.83	8.90	8.05	1.02	.71	.07	.25	69.61	6.86	24.51	105	.88	19					
28-29	2,850	1.022	13.65	11.03	.54	.59	.22	1.27	80.79	4.06	4.32	1.61	9.30	7.83	.97	.70	.04	.23	72.16	4.12	23.71	288	.78	42					
Nov. 30, Dec. 1	2,025	1.029	12.63	9.93	.38	.71	.24	1.37	78.62	3.01	5.62	1.90	10.85	5.40	1.09	.72	.06	.31	66.06	5.50	28.44	294	.86	18	173.00	11.14	29.80	.11	2.68
Dec. 2-3	2,640	1.027	14.46	11.68	.53	.72	.26	1.27	80.77	3.66	4.98	1.80	8.78	7.51	1.07	.73	.06	.28	68.20	5.61	26.18	351	.97	18					
4	1,375	1.025	14.15	11.69	.49	.71	.23	1.03	82.61	3.46	5.01	1.62	7.29	8.14	1.02	.72	.08	.22	70.59	7.84	21.57	390	.93	22					
5-6	2,515	1.025	13.14	10.81	.53	.67	.23	.90	82.27	4.03	5.09	1.75	6.85	6.75	.95	.66	.07	.22	69.48	7.36	23.16	348	.81	50					
Av....	1,237	1.025	13.49	10.93	.51	.69	.23	1.12	80.99	3.80	5.18	1.73	8.31	7.03	1.02	.71	.07	.24	69.87	6.33	23.94	282	.85	28	23.80	1.46	4.40	.10	3.08
Dec. 7-8	2,475	1.027	13.44	11.09	.37	.69	.23	1.06	82.51	2.75	5.13	1.75	7.88	7.24	1.15	.78	.07	.30	67.82	6.09	26.10	270	.77	42	141.00	8.58	26.52	.08	3.10
9-10	2,750	1.028	14.94	12.58	.41	.67	.26	1.02	84.21	2.74	4.48	1.74	6.83	8.22	1.15	.80	.08	.27	69.56	6.95	23.49	318	1.02	42					
11	1,220	1.029	14.07	11.64	.42	.74	.23	1.04	82.73	2.99	5.25	1.63	7.39	6.66	1.03	.80	.07	.16	77.68	6.79	15.53	372	.89	45					
12-13	3,000	1.023	13.62	11.09	.42	.65	.17	1.29	81.42	3.08	4.77	1.24	9.47	6.57	1.10	.69	.06	.35	62.72	5.45	31.83	255	.75	20					
14-15	2,350	1.027	13.95	11.29	.41	.82	.24	1.19	80.93	2.93	5.88	1.72	8.53	7.29	1.03	.75	.05	.23	72.82	4.85	22.33	273	.85	13	171.50	11.39	32.16	.15	2.83
16-17	2,550	1.026	14.73	12.53	.37	.73	.23	.87	85.06	2.51	4.96	1.56	5.91	6.88	1.12	.82	.07	.23	73.21	6.25	20.54	324	.89	13					
18	1,250	1.028	15.27	12.61	.40	.71	.26	1.29	82.58	2.62	4.65	1.70	8.45	6.98	1.14	.85	.06	.23	74.56	5.26	20.18	366	1.01	18					
Av....	1,300	1.027	14.29	11.98	.40	.71	.23	1.11	82.78	2.80	5.02	1.62	7.78	7.12	1.10	.78	.06	.25	71.19	5.95	22.57	311	.88	28	26.04	1.66	4.80	.12	2.97
Jan. 4-5	850	1.034	13.83	11.31	.47	.73	.22	1.10	81.80	3.40	5.28	1.59	7.96	4.99	1.13	.86	.05	.22	76.10	4.42	19.48	372	.94	50	123.00	7.32	22.56	.06	3.08
6-7	3,000	1.025	16.47	13.68	.48	.69	.26	1.36	83.06	2.91	4.19	1.57	8.26	8.41	1.24	.91	.05	.28	73.38	4.03	22.59	228	1.05	143					
8	1,790	1.024	16.25	13.65	.49	.76	.29	1.06	84.00	3.07	4.67	1.77	6.51	9.82	1.37	1.02	.07	.28	74.46	5.10	20.44	279	1.08	7					
9-10	2,425	1.028	15.57	12.86	.58	.69	.24	1.20	82.60	3.73	4.43	1.54	7.70	6.79	1.13	.85	.05	.23	75.22	4.42	20.35	360	.99	200					
11-12	2,760	1.026	15.00	12.31	.47	.76	.25	1.21	82.10	3.14	5.03	1.67	8.06	8.33	1.12	.78	.09	.25	69.64	8.04	22.32	276	.90	214	132.50	8.45	21.50	.07	2.40
13-14	2,940	1.027	15.44	12.77	.45	.73	.28	1.21	82.71	2.92	4.75	1.82	7.80	8.46	1.13	.84	.05	.24	74.35	4.45	21.20	312	1.01	83					
15	1,690	1.023	17.30	14.49	.43	.86	.27	1.25	83.76	2.49	4.96	1.56	7.23	8.92	1.30	1.02	.03	.25	78.44	2.32	19.24	297	1.09	18					
16-17	2,650	1.028	15.03	12.77	.49	.71	.23	.83	84.95	3.27	4.74	1.53	5.53	6.84	1.09	.78	.07	.24	71.58	6.42	22.00	333	.96	100					
Av....	1,293	1.027	15.61	12.98	.48	.74	.26	1.15	83.12	3.11	4.76	1.63	7.38	7.82	1.19	.88	.06	.25	74.15	4.90	20.95	307	1.00	102	18.25	1.12	3.14	.06	2.74
Jan. 18-19	2,500	1.029	13.08	11.06	.39	.68	.23	.72	84.56	2.98	5.20	1.76	5.50	7.87	1.17	.75	.06	.36	64.10	5.13	30.77	282	.99	111	227.00	14.16	41.30	.14	2.92
20-21	2,500	1.028	15.77	13.07	.43	.67	.29	1.31	83.10	2.78	4.14	1.83	8.20	6.89	1.08	.89	.05	.14	82.40	4.66	12.94	315	1.00	111					
22	1,020	1.029	12.38	10.17	.42	.78	.21	.80	82.20	3.39	6.30	1.70	6.41	6.61	.88	.68	.03	.17	77.26	3.42	19.32	384	.94	107					
23-24	2,450	1.024	14.18	11.55	.42	.68	.25	1.28	81.45	2.96	4.80	1.76	9.03	4.86	1.07	.74	.04	.29	69.15	3.84	27.01	354	1.08	113					
25-26	2,310	1.028	14.61	12.06	.45	.69	.23	1.18	82.55	3.08	4.72	1.58	8.07	6.93	1.07	.82	.04	.21	76.55	3.84	19.61	195	.96	112	165.50	10.20	35.80	.10	3.51
27-28	2,750	1.023	14.60	12.29	.49	.67	.21	.94	84.18	3.35	4.59	1.44	6.44	6.93	1.07	.77	.05	.25	71.95	4.67	23.38	306	.88	113					
29	1,265	1.022	14.60	12.00	.51	.71	.24	1.14	82.20	3.49	4.86	1.65	7.80	5.54	1.14	.85	.04	.25	74.55	3.50	21.95	345	.92	38					
30-31	1,880	1.031	14.19	11.62	.56	.74	.22	1.05	81.88	3.95	5.22	1.55	7.40	5.32	.96	.73	.04	.19	76.03	4.17	19.80	330	.84	20					
Av....	1,191	1.027	14.18	11.73	.46	.70	.23	1.07	82.78	3.25	4.98	1.66	7.36	6.37	1.05	.78	.04	.23	73.99	4.15	21.85	314	.95	91	28.03	1.74	5.50	.12	3.21

Analytical table in full—Continued.

Subject 1—Continued.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1–2	2,000	1.030	14.37	11.98	0.50	0.69	0.22	0.98	83.38	3.48	4.80	1.52	6.82	4.95	1.04	0.79	0.05	0.20	75.97	4.80	19.23	360	0.84	41	87.00	5.57	22.91	0.05	4.11
3–4	2,250	1.025	11.37	9.03	.36	.68	.19	1.11	79.32	3.27	5.98	1.67	9.76	4.45	.88	.63	.05	.20	71.60	5.68	22.72	240	.75	71					
5	1,110	1.031	13.80	11.54	.40	.69	.23	.94	83.50	2.90	5.00	1.80	6.80	8.46	1.02	.82	.06	.14	80.40	5.88	13.72	303	.88	28					
6–7	2,160	1.029	13.95	11.40	.38	.69	.23	1.25	81.73	2.72	4.95	1.65	8.95	7.43	.98	.73	.05	.20	74.48	5.10	20.42	294	.95	55					
Av....	1,074	1.029	13.37	10.99	.41	.69	.22	1.07	81.98	3.09	5.18	1.66	8.08	6.32	.98	.74	.05	.19	75.61	5.36	19.02	299	.86	49	12.42	.79	3.27	.05	4.11
Feb. 8	1,500	1.019	9.09	7.07	.38	.71	.13	.80	77.90	4.18	7.80	1.43	8.77	5.76	.59	.35	.04	.20	59.30	6.78	33.92	210	.69	14	166.50	11.09	26.59	.26	2.39
9	1,740	1.014	7.20	5.01	.46	.68	.15	.90	69.59	6.39	9.44	2.08	12.50	5.32	.51	.30	.03	.18	58.82	5.88	35.30	174	.57	17					
10	1,040	1.019	6.36	4.19	.43	.67	.15	.92	65.90	6.76	10.56	2.36	14.44	3.96	.55	.29	.06	.20	52.75	10.90	36.35	124	.56	41					
11	730	1.019	5.64	4.05	.45	.56	.10	.48	71.80	7.98	9.93	1.77	8.52	1.21	.52	.33	.04	.15	63.45	7.70	28.85	248	.46	35					
12	1,300	1.013	6.13	4.35	.29	.69	.12	.68	71.00	4.73	11.25	1.96	11.06	1.44	.35	.19	.03	.13	54.30	8.55	37.15	202	.70	21					
13	1,075	1.019	6.30	3.87	.33	.78	.14	1.18	61.45	5.24	12.38	2.22	18.71	3.32	.26	.16	.02	.08	61.55	7.69	30.76	210	.61	35					
14	560	1.024	7.00	4.76	.19	.47	.11	1.47	68.00	2.72	6.72	1.57	21.00	1.64	.41	.27	.02	.12	65.83	4.88	29.29	237	.53	13					
Av....	1,135	1.018	6.82	4.76	.36	.65	.13	.92	67.38	5.43	9.73	1.91	13.55	3.24	.46	.27	.04	.15	59.43	7.48	33.09	201	.59	25	23.78	1.58	3.79	.26	2.39
Feb. 15–16	2,200	1.028	10.45	8.40	.40	.71	.21	.73	80.40	3.83	6.79	2.01	6.97	6.56	.87	.56	.06	.25	64.40	6.90	28.70	170	.67	17	159.00	10.95	25.60	.12	2.34
17–18	2,360	1.028	12.83	10.40	.46	.76	.23	.98	81.07	3.58	5.92	1.79	7.64	7.74	1.07	.76	.04	.27	71.03	3.74	25.23	234	.75	17					
19	1,090	1.029	12.96	10.99	.41	.76	.22	.58	84.81	3.16	5.86	1.70	4.47	6.66	1.03	.72	.05	.26	69.90	4.85	25.25	354	.86	50					
20–21	3,000	1.023	14.34	12.04	.41	.79	.26	.84	83.97	2.86	5.50	1.81	5.86	7.70	1.08	.71	.08	.29	65.73	7.41	26.86	294	.92	33					
22–23	2,000	1.032	13.68	11.49	.38	.69	.23	.89	83.93	2.85	5.04	1.64	6.50	6.32	1.05	.73	.07	.25	69.54	6.66	23.80	342	1.04	55	179.50	11.44	31.40	.10	2.75
24–25	2,800	1.025	15.51	13.30	.41	.72	.27	.81	85.76	2.64	4.64	1.74	5.22	6.84	1.17	.82	.03	.32	71.12	2.56	27.32	306	.98	88					
26	1,360	1.026	15.72	13.13	.55	.74	.23	1.07	83.42	3.50	4.77	1.46	6.85	6.52	1.21	.86	.06	.29	71.10	4.96	23.94	378	.90	32					
27–28	2,280	1.031	14.43	12.13	.37	.78	.24	.91	84.08	2.56	5.40	1.66	6.30	7.42	1.05	.75	.06	.24	71.43	5.71	22.86	246	.91	50					
Av....	1,220	1.028	13.74	11.48	.42	.74	.23	.85	83.43	3.12	5.49	1.73	6.23	6.97	1.07	.74	.06	.27	69.28	5.34	25.49	290	.88	43	24.18	1.59	4.07	.11	2.55

Mar. 1–2	2,200	1.028	14.13	11.62	.53	.65	.25	1.08	82.23	3.75	4.60	1.77	7.65	6.48	1.09	.76	.06	.27	69.75	5.50	24.75	354	.97	28					
3–4	3,020	1.023	13.47	11.40	.32	.70	.23	.82	84.64	2.37	5.20	1.71	6.08	5.34	1.07	.74	.06	.27	69.20	5.60	25.20	290	.97	23					
5	1,570	1.024	15.71	12.75	.35	.75	.26	1.60	81.17	2.23	4.77	1.65	10.18	9.42	1.20	.87	.03	.30	72.50	2.50	25.00	289	.95	36	148.00	9.56	28.50	.09	2.98
6–7	2,410	1.028	14.64	12.00	.42	.67	.24	1.31	81.95	2.87	4.58	1.64	8.96	6.62	1.08	.78	.06	.24	72.22	5.55	22.23	333	1.04	42					
Av....	1,314	1.026	14.49	11.94	.40	.69	.25	1.20	82.49	2.80	4.79	1.69	8.22	6.99	1.11	.79	.05	.27	70.92	4.79	24.29	316	.98	32	21.14	1.36	4.07	.09	2.98
Mar. 8–9	2,290	1.028	13.26	10.95	.37	.75	.26	.93	82.58	2.79	5.65	1.96	7.02	6.88	1.12	.75	.07	.30	66.95	6.25	26.80	336	.99	62					
10–11	2,700	1.028	16.02	13.35	.51	.73	.23	1.20	83.35	3.18	4.55	1.44	7.48	7.65	1.31	.90	.07	.34	68.70	5.34	25.96	399	1.14	50					
12	1,460	1.028	15.33	12.56	.52	.67	.26	1.32	82.03	3.39	4.37	1.70	8.61	7.60	1.19	.80	.07	.32	67.23	5.88	26.89	369	1.05	31	162.00	9.97	30.15	.09	3.03
13–14	2,480	1.027	14.30	11.88	.50	.77	.23	.92	83.10	3.50	5.38	1.60	6.42	7.34	1.11	.76	.05	.30	68.48	4.50	27.02	348	.94	55					
15	1,300	1.026	14.28	11.87	.43	.77	.23	.98	83.12	3.01	5.40	1.61	6.86	7.79	1.20	.81	.03	.36	67.50	2.50	30.00	300	1.06	42	67.50	4.05	......	.28	.....
Av....	1,279	1.027	14.64	12.12	.47	.74	.24	1.07	82.84	3.17	5.07	1.66	7.28	5.45	1.19	.80	.06	.33	67.77	4.89	27.35	351	1.04	48	28.69	1.75	4.30	.18	3.03

Analytical table in full—Continued.

Subject 2.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$.	$\frac{\text{Feces fat}}{\text{Feces N}}$.
	c. c.		Gms.	Gms.	Gm.	Gm.	Gm.	Gms.	P. c.	P. c.	P. c.	P. c.	P. c.	Gms.	Gms.	Gm.	Gm.	Gm.	P. c.	P. c.	P. c.		Gms.		Gms.	Gms.	Gms.		
Oct. 20	1,340	1.021	14.79	12.64	0.62	0.65	0.24	0.64	85.46	4.19	4.40	1.62	4.30	6.48	1.06	0.86	0.03	0.17	81.13	2.83	16.41	288	1.24	33					
21	1,560	1.019	13.47	11.00	.59	.67	.22	.99	81.66	4.38	4.97	1.63	7.35	7.30	.89	.69	.04	.16	77.51	4.49	17.98	240	.95	20	47.50	3.04	5.28	0.07	1.77
22	1,180	1.020	13.53	10.69	.56	.65	.23	1.40	79.01	4.14	4.82	1.70	10.33	5.22	1.01	.81	.04	.16	80.20	3.96	15.84	252	1.01	17					
Av....	1,360	1.020	13.93	11.44	.59	.66	.23	1.01	82.04	4.24	4.72	1.65	7.33	6.33	.99	.79	.04	.16	79.61	3.76	16.74	260	1.07	23	15.83	1.01	1.76	.07	1.77
Oct. 23	1,045	1.028	15.81	13.18	.65	.63	.24	1.11	83.37	4.12	3.98	1.52	7.02	4.09	1.22	.96	.02	.23	78.69	1.64	18.85	351	1.00	13					
24	1,230	1.023	14.79	12.13	.65	.65	.21	1.15	82.00	4.40	4.40	1.42	7.77	5.04	1.01	.79	.03	.19	78.23	2.97	18.81	306	.94	33					
25	1,275	1.025	10.68	8.44	.50	.59	.18	.97	79.06	4.68	5.52	1.68	9.08	5.89	.75	.51	.03	.20	68.00	6.78	28.00	177	.71	56					
26	950	1.028	11.33	9.34	.52	.66	.20	.61	82.43	4.59	5.82	1.76	5.38	5.54	1.00	.75	.04	.21	75.00	4.00	21.00	267	.84	80	95.00	6.08	10.57	.08	1.74
27	1,530	1.019	12.12	9.83	.60	.59	.18	.92	81.10	4.94	4.86	1.48	7.59	7.71	.85	.64	.05	.16	75.29	5.88	18.82	270	.89	42					
28	1,310	1.024	11.45	9.13	.59	.67	.18	.88	79.73	5.15	5.85	1.57	7.78	6.93	.88	.64	.06	.18	72.74	6.81	20.45	228	.91	20					
29	880	1.026	12.90	10.02	.57	.68	.19	1.44	77.67	4.42	5.27	1.47	11.16	5.04	.88	.65	.05	.18	73.90	5.64	20.46	336	1.00	42					
30	1,280	1.024	13.08	10.68	.63	.64	.18	.95	81.65	4.81	4.89	1.37	7.26	6.25	.98	.70	.06	.22	71.43	6.12	22.45	315	.99	25	191.00	11.11	33.82	.22	3.05
Oct. 31 / Nov. 1	2,575	1.023	11.70	9.41	.58	.61	.18	.92	80.42	4.95	5.21	1.54	7.86	6.03	.84	.63	.05	.17	75.00	5.95	20.38	276	.85	11					
Av....	1,208	1.024	12.65	10.24	.59	.63	.19	.99	80.82	4.67	5.09	1.53	7.88	5.84	.93	.69	.04	.19	74.25	5.09	21.02	281	.90	36	28.60	1.72	4.44	.15	2.39
Nov. 2	1,240	1.024	12.69	10.48	.56	.61	.18	.86	82.57	4.41	4.81	1.43	6.78	6.48	.90	.68	.04	.18	75.55	4.44	20.00	240	.91	56					
3	960	1.028	12.36	10.07	.55	.67	.16	.91	81.47	4.45	5.42	1.29	7.35	4.50	.95	.66	.08	.22	69.48	8.42	23.16	288	.90	111					
4	1,360	1.020	12.18	9.89	.63	.63	.19	.84	81.21	5.17	5.17	1.56	6.90	5.35	.92	.67	.03	.22	72.82	3.26	23.91	213	.90	63	190.50	11.18	26.11	.12	2.34
5	1,355	1.022	12.24	9.72	.54	.64	.20	1.14	79.41	4.41	5.22	1.63	9.30	6.78	.92	.66	.04	.22	71.73	4.34	23.91	218	.86	71					
6	1,395	1.024	14.01	11.52	.44	.61	.23	1.21	82.22	3.14	4.35	1.64	8.63	7.02	.99	.74	.06	.18	74.74	6.06	18.18	180	.88	87					
7-8	2,035	1.025	11.75	9.73	.53	.59	.17	.73	82.80	4.51	5.02	1.44	6.21	4.68	.88	.63	.05	.20	71.59	5.68	22.72	270	.85	50					
Av....	1,192	1.024	12.54	10.23	.54	.62	.19	.95	81.61	4.35	4.99	1.49	7.53	5.80	.92	.67	.05	.20	72.57	5.37	21.98	235	.88	73	27.21	1.59	3.73	.12	2.34

Nov. 9	840	1.024	11.58	9.39	.51	.59	.17	.92	81.09	4.40	5.09	1.46	7.96	4.16	.89	.65	.04	.20	73.03	4.49	22.47	267	.83	20					
10-11	2,525	1.024	12.78	10.54	.53	.64	.21	.85	82.47	4.14	5.01	1.64	6.73	6.12	.99	.72	.04	.23	72.73	4.04	23.23	246	.93	91					
12-13	2,500	1.022	11.10	9.31	.55	.60	.19	.45	83.87	4.95	5.41	1.75	4.05	7.78	.93	.67	.02	.25	72.04	2.15	26.88	264	.85	33	172.50	11.05	33.61	.13	3.04
14-15	2,475	1.022	10.82	8.86	.44	.54	.19	.79	81.90	4.07	5.00	1.68	7.31	4.95	.81	.58	.05	.18	71.60	6.17	22.22	249	.78	50					
16-17	2,710	1.022	11.91	9.76	.59	.59	.20	.77	81.95	4.95	4.95	1.67	6.46	5.85	.97	.65	.13	.19	67.01	13.40	19.59	288	.86	91					
18-19	3,100	1.020	11.75	9.47	.51	.61	.20	.96	80.60	4.34	5.19	1.70	8.17	7.11	.83	.63	.12	.08	75.90	14.46	9.63	115	.85	20	215.00	12.05	21.45	.17	1.78
20, 22	1,980	1.025	12.00	9.87	.63	.55	.17	.78	82.25	5.25	4.58	1.41	6.50	4.18	.86	.59	.05	.21	68.60	5.80	24.42	294	.82	25					
Av....	1,240	1.023	11.71	9.60	.54	.59	.19	.79	82.02	4.59	5.07	1.61	6.74	5.73	.89	.64	.06	.19	71.56	7.21	21.21	246	.85	47	29.80	1.77	4.23	.15	2.41
Nov. 23-24	2,800	1.022	13.86	11.55	.66	.61	.21	.83	83.34	4.76	4.40	1.51	5.98	7.15	1.00	.72	.05	.24	72.00	5.00	24.00	261	.87	71					
25, 27	2,945	1.022	12.24	9.76	.80	.69	.23	.76	79.75	6.48	5.65	1.87	6.20	7.74	1.00	.70	.06	.24	70.00	6.00	24.00	.....	.73	56	167.00	10.81	33.90	.13	3.14
28-29	3,500	1.018	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.73	.95	.62	.06	.27	65.26	6.31	28.42	.....	.93	36					
Nov. 30, Dec. 1	1,610	1.028	10.83	8.80	.55	.60	.15	.73	81.24	5.08	5.54	1.38	6.76	3.15	.82	.56	.05	.21	68.30	6.10	25.60	282	.86	18					
Dec. 2-3	3,185	1.023	11.24	8.96	.53	.60	.22	.93	79.72	4.71	5.34	1.95	8.28	8.13	.91	.61	.06	.24	67.03	6.60	26.37	251	.91	20	179.50	11.64	26.65	.14	2.29
4	1,065	1.026	12.24	9.90	.63	.57	.21	.93	80.88	5.14	4.66	1.71	7.61	4.95	.89	.64	.05	.20	71.92	5.61	22.47	363	.89	42					
5-6	3,035	1.019	10.51	8.41	.51	.52	.19	.88	80.00	4.85	4.95	1.82	8.38	6.65	.77	.57	.04	.16	74.03	5.17	20.80	268	.80	63					
Av....	1,392	1.023	11.82	9.56	.61	.60	.20	.84	80.82	5.17	5.09	1.71	7.20	7.75	.90	.63	.05	.22	69.79	5.83	24.52	285	.86	44	26.65	1.72	4.65	.13	2.71
Dec. 7-8	2,225	1.026	12.71	10.05	.48	.64	.20	1.34	79.09	3.78	5.03	1.57	10.53	5.89	.95	.68	.05	.22	71.60	5.26	23.14	222	.82	50					
9-10	2,930	1.024	12.81	10.43	.52	.56	.22	1.08	81.42	4.06	4.37	1.73	8.42	7.96	.95	.69	.03	.23	72.62	3.16	24.22	225	.91	25	267.00	15.60	39.83	.18	2.55
11	1,215	1.025	11.54	9.23	.55	.62	.22	.92	79.98	4.77	5.34	1.92	7.99	5.40	.97	.70	.05	.22	72.20	5.13	22.67	318	.88	Tr.					
12-13	3,025	1.019	10.80	8.61	.47	.58	.17	.97	79.73	4.35	5.37	1.57	8.98	5.89	.82	.58	.05	.19	70.74	6.10	23.16	179	.72	14					
14-15	2,910	1.021	10.92	8.62	.50	.66	.18	.96	79.00	4.58	6.02	1.65	8.78	7.15	.85	.59	.04	.22	69.45	4.71	25.84	195	.75	20					
16-17	3,560	1.019	12.99	10.61	.50	.62	.22	1.04	81.60	3.85	4.77	1.68	8.10	7.53	1.03	.74	.05	.24	71.81	4.85	23.34	199	.87	23	162.00	10.10	37.32	.16	3.68
18	1,300	1.024	13.05	10.83	.50	.59	.20	.93	82.99	3.81	4.49	1.52	7.19	5.22	.95	.70	.04	.21	73.70	4.20	22.10	252	.99	23					
Av....	1,430	1.023	12.12	9.77	.50	.61	.20	1.03	80.54	4.17	5.05	1.66	8.57	6.43	.93	.67	.04	.22	72.73	4.77	23.49	226	.85	22	35.75	2.14	6.43	.17	3.11
Jan. 4-5	3,200	1.020	12.48	10.03	.63	.62	.20	1.00	80.37	5.05	4.97	1.60	8.01	7.44	.95	.73	.04	.18	76.84	4.21	18.95	275	.92	166					
6-7	3,400	1.020	12.24	10.09	.60	.61	.23	.71	82.52	4.90	4.98	1.88	5.72	7.81	.99	.68	.03	.28	68.69	3.03	28.29	388	.76	33	180.50	11.53	38.61	.12	3.35
8	1,650	1.020	11.90	9.25	.65	.74	.23	1.03	77.73	5.46	6.22	1.93	8.66	7.47	1.10	.79	.03	.28	71.81	2.73	25.46	277	.98	66					
9-10	1,800	1.026	11.64	9.30	.61	.64	.21	.88	79.89	5.24	5.50	1.80	7.56	3.64	.82	.59	.04	.19	71.96	4.87	23.17	300	.88	125					
11-12	3,020	1.022	11.38	9.20	.55	.58	.20	.85	80.84	4.83	5.10	1.76	7.47	8.20	.86	.59	.04	.23	68.61	4.65	26.74	367	.82	154					
13-14	3,150	1.021	10.35	8.10	.50	.65	.20	.90	78.30	4.81	6.28	1.91	8.70	8.02	.81	.57	.04	.20	70.40	4.98	24.62	209	.79	84	172.50	11.05	28.09	.13	2.54
15	1,515	1.022	12.97	10.49	.52	.64	.25	1.07	80.88	4.01	4.94	1.93	8.24	6.41	1.03	.74	.04	.25	71.80	3.88	24.32	212	.89	41					
16-17	2,900	1.022	10.92	9.03	.44	.59	.19	.67	82.62	4.03	5.40	1.74	6.21	6.52	.80	.56	.05	.19	70.00	6.25	23.75	222	.84	72					
Av....	1,474	1.022	11.73	9.44	.56	.63	.21	.89	80.39	4.79	5.42	1.82	7.57	6.94	.92	.65	.04	.23	71.26	4.33	24.41	281	.83	93	25.21	1.61	4.76	.12	2.95
Jan. 18-19	2,000	1.028	10.74	8.82	.42	.56	.18	.76	82.13	3.91	5.21	1.68	7.07	5.90	.85	.61	.03	.21	71.75	3.55	24.70	195	.90	100					
20-21	2,730	1.021	11.75	9.53	.46	.59	.21	.96	81.18	3.91	5.01	1.79	8.11	6.17	.86	.65	.02	.19	75.66	2.33	22.01	219	.84	111	214.50	11.95	38.32	.16	3.21
22	1,150	1.025	10.02	7.96	.43	.61	.20	.82	79.50	4.28	6.07	1.98	8.17	6.82	.85	.62	.05	.18	72.94	5.88	21.18	156	.61	55					
23-24	3,100	1.019	10.70	8.44	.48	.54	.20	1.04	78.84	4.49	5.05	1.87	9.75	5.72	.75	.51	.05	.19	68.00	6.67	25.33	192	.68	111					
25-26	2,730	1.022	10.11	8.05	.47	.60	.18	.81	79.74	4.54	5.93	1.78	8.01	6.26	.81	.57	.05	.19	70.35	6.17	23.48	135	.71	111					
27-28	2,670	1.020	9.48	7.40	.46	.54	.18	.90	78.08	4.85	5.69	1.89	9.49	5.36	.75	.52	.02	.21	69.30	2.67	28.03	210	.69	77	187.00	11.02	41.60	.14	3.77
29	1,530	1.018	10.95	9.19	.53	.56	.18	.49	83.94	4.84	5.10	1.64	4.48	6.06	.89	.65	.03	.21	73.03	3.37	23.60	205	.80	77					
30-31	3,040	1.022	12.55	10.34	.48	.59	.18	.96	82.35	3.85	4.70	1.44	7.66	6.34	.92	.69	.06	.17	75.00	6.52	18.48	268	.88	20					
Av....	1,354	1.022	10.79	8.72	.47	.57	.19	.84	80.72	4.33	5.3	1.76	7.84	6.08	.83	.60	.04	.19	72.00	4.67	23.33	198	.76	85	28.68	1.64	5.70	.15	3.49

Analytical table in full—Continued.

Subject 2—Continued.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$	$\frac{\text{Feces fat}}{\text{Feces N}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gm.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1–2	1,990	1.029	11.46	9.16	0.53	0.60	0.17	1.00	79.95	4.62	5.23	1.48	8.72	5.40	0.93	0.70	0.03	0.20	75.27	3.25	21.50	231	0.70	41	231.00	15.21	55.42	.19	3.64
3–4	2,220	1.023	10.28	8.16	.51	.61	.18	.82	79.40	4.96	5.94	1.75	7.95	5.18	.79	.55	.05	.19	69.63	6.33	24.04	201	.72	100					
5	950	1.029	11.46	9.21	.42	.58	.19	1.06	80.37	3.67	5.06	1.66	9.24	6.21	.86	.61	.02	.23	70.92	2.33	26.75	261	.83	50					
6–7	3,120	1.020	11.25	9.04	.48	.59	.20	.94	80.34	4.27	5.25	1.78	8.36	7.86	.85	.62	.05	.18	72.93	5.89	21.18	212	.79	77					
Av....	1,183	1.025	11.11	8.89	.48	.59	.18	.96	80.01	4.38	5.37	1.67	8.57	6.16	.86	.62	.04	.20	72.19	4.44	23.37	226	.86	67	33.00	2.17	7.91	.19	3.64
Feb. 8	1,550	1.016	8.37	6.48	.52	.58	.14	.65	77.43	6.22	6.93	1.67	7.75	4.55	.59	.37	.03	.19	62.70	5.09	32.21	278	.81	23	131.50	9.25	20.10	.22	2.17
9	1,930	1.012	6.72	4.67	.48	.58	.15	.94	69.50	7.14	8.63	2.23	12.50	5.96	.48	.27	.03	.18	56.25	6.25	37.50	170	.62	36					
10	1,595	1.013	5.60	3.26	.41	.50	.12	1.31	58.20	7.32	8.93	2.15	23.40	3.30	.42	.23	.03	.16	54.80	7.12	38.08	172	.59	55					
11	1,640	1.013	5.61	4.03	.40	.49	.08	.61	71.84	7.13	8.74	1.42	10.87	3.79	.46	.23	.01	.22	50.00	2.17	47.83	151	.54	21					
12	1,070	1.013	4.28	2.57	.34	.55	.10	.72	60.05	7.94	12.85	2.34	16.82	2.28	.33	.18	.02	.13	54.54	6.06	39.40	186	.50	32					
13	1,410	1.015	5.38	3.21	.34	.57	.11	1.15	59.65	6.32	10.60	2.05	21.38	3.98	.38	.19	.05	.14	50.00	13.15	36.85	135	.52	10					
14	2,260	1.013	4.38	2.44	.38	.44	.08	1.04	55.71	8.68	10.05	1.82	23.74	5.83	.32	.16	.03	.13	50.00	9.38	40.62	154	.52	25					
Av....	1,636	1.013	5.76	3.81	.41	.53	.11	.91	64.63	7.25	9.53	1.95	16.64	4.24	.42	.23	.03	.16	54.04	7.03	38.93	178	.59	29	18.78	1.32	2.87	.22	2.17
Feb. 15–16	2,650	1.023	9.00	7.28	.43	.50	.18	.61	80.90	4.77	5.56	2.00	6.77	6.80	.75	.49	.03	.23	65.35	4.00	30.65	135	.60	34	281.50	17.54	53.40	.23	3.05
17–18	2,590	1.023	10.02	7.89	.50	.63	.18	.82	78.74	4.99	6.29	1.79	8.19	7.60	.80	.53	.03	.24	66.25	3.75	30.00	126	.67	17					
19	1,180	1.024	11.43	8.86	.59	.59	.19	1.20	77.52	5.16	5.16	1.66	10.50	5.94	.97	.64	.05	.28	66.00	5.15	28.85	300	.76	89					
20–21	3,200	1.021	11.87	9.76	.51	.63	.23	.74	82.20	4.30	5.30	1.99	6.21	6.87	.90	.61	.04	.25	67.78	4.44	27.78	230	.82	71					
22–23	2,150	1.026	10.35	8.22	.53	.56	.22	.82	79.42	5.12	5.41	2.13	7.93	5.13	.85	.56	.06	.23	65.90	7.06	27.04	252	.77	71	164.50	10.95	27.96	.13	2.55
24–25	3,090	1.020	12.00	9.78	.53	.64	.22	.83	81.50	4.42	5.33	1.83	6.92	6.68	.90	.63	.02	.25	70.00	2.22	27.78	225	.77	46					
26	1,040	1.029	12.51	10.37	.49	.65	.24	.76	82.98	3.92	5.20	1.92	5.98	6.18	1.00	.68	.04	.28	68.00	4.00	28.00	225	.77	25					
27–28	3,250	1.022	12.80	10.49	.46	.66	.23	.96	81.96	3.59	5.15	1.80	7.50	7.66	1.01	.68	.04	.29	67.32	3.96	28.72	195	.82	33					
Av....	1,368	1.024	11.25	9.08	.50	.61	.21	.84	80.65	4.53	5.43	1.89	7.50	6.61	.89	.60	.04	.25	67.08	8.32	28.60	211	.75	48	31.85	2.03	5.81	.18	2.80

Mar. 1–2	1,900	1.029	12.24	10.09	.59	.65	.22	.69	82.43	4.82	5.31	1.80	5.64	5.44	.93	.63	.06	.24	67.75	6.45	25.80	321	.87	62	242.00	14.40	48.02	.16	3.34
3–4	3,320	1.021	12.88	10.55	.46	.62	.24	1.01	81.92	3.57	4.81	1.86	7.84	7.92	1.02	.71	.04	.27	69.60	3.92	26.48	232	.87	55					
5	1,710	1.024	13.80	11.28	.44	.66	.28	1.14	81.74	3.19	4.78	2.03	8.26	9.24	1.07	.76	.04	.27	71.03	3.74	25.23	222	.95	13					
6–7	2,380	1.025	11.97	9.66	.54	.60	.20	.97	80.80	4.50	5.01	1.67	8.02	5.49	.94	.66	.04	.24	70.22	4.26	25.52	291	.86	71					
Av....	1,330	1.025	12.72	10.39	.51	.63	.23	.95	81.72	4.02	4.98	1.84	7.42	7.02	.99	.69	.04	.26	69.65	4.59	25.76	266	.89	50	34.57	2.05	6.86	.16	3.34
Mar. 8–9	2,860	1.022	12.21	10.06	.59	.63	.24	.69	82.39	4.83	5.16	1.96	5.66	5.99	1.06	.69	.04	.33	65.10	3.77	31.13	264	.81	100	188.50	11.28	37.89	.13	3.36
10–11	2,850	1.024	13.47	10.77	.60	.67	.21	1.22	79.97	4.45	4.97	1.56	9.05	7.28	1.05	.70	.04	.31	66.69	3.81	29.50	258	.85	50					
12	1,040	1.027	12.17	9.79	.62	.55	.21	1.00	80.45	5.09	4.52	1.72	8.22	5.72	1.02	.69	.04	.29	67.68	3.92	28.40	309	.89	52					
13–14	2,700	1.022	11.40	8.94	.57	.59	.20	1.10	78.42	5.00	5.18	1.75	9.65	6.71	.94	.60	.03	.31	63.81	3.19	33.00	240	.77	55					
15	1,150	1.024	11.36	9.25	.52	.59	.20	.80	81.43	4.58	5.19	1.76	7.04	5.90	.94	.59	.02	.33	62.77	2.13	35.10	234	.79	41	53.00	3.26	......	.28	......
Av....	1,325	1.024	12.12	9.76	.58	.61	.21	.96	80.53	4.79	5.00	1.75	7.92	6.32	1.00	.65	.04	.31	65.21	3.36	31.45	261	.82	59	30.18	1.81	5.41	.20	3.36

Analytical table in full—Continued.

Subject 3.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,060	1.026	14.88	12.16	0.68	0.71	0.26	1.07	81.72	4.56	4.77	1.75	7.19	6.12	1.04	0.82	0.07	0.16	78.84	6.73	15.39	348	0.94	100					
21	1,100	1.025	14.22	11.54	.55	.74	.27	1.12	81.15	3.87	5.20	1.90	7.88	5.58	.96	.75	.08	.14	78.12	8.33	14.60	291	1.01	55	45.18	2.43	8.55	0.18	3.52
22	1,280	1.023	14.90	11.66	.63	.78	.25	1.58	78.26	4.22	5.23	1.67	10.61	6.30	1.07	.84	.04	.18	78.51	3.73	16.82	303	1.04	25					
Av....	1,147	1.025	14.67	11.78	.62	.74	.26	1.26	80.37	4.22	5.07	1.77	8.63	6.00	1.02	.80	.06	.16	78.49	6.26	15.60	314	.99	60	15.06	.81	2.85	.18	3.52
Oct. 23	1,220	1.026	15.51	12.55	.59	.73	.24	1.40	81.01	3.80	4.60	1.55	9.03	6.57	1.10	.86	.05	.19	78.18	4.65	17.27	300	1.00	45					
24	1,200	1.021	10.05	7.99	.35	.53	.17	1.01	79.50	3.49	5.29	1.70	9.99	5.31	.75	.54	.04	.17	72.00	5.33	22.66	138	.73	45					
25	1,375	1.022	12.69	10.41	.48	.66	.19	.95	82.03	3.78	5.20	1.50	7.48	5.89	.93	.65	.05	.23	69.89	5.37	24.73	249	.90	36					
26	1,050	1.029	13.55	11.25	.50	.75	.22	.83	83.02	3.69	5.53	1.62	6.12	5.72	1.11	.82	.06	.23	73.87	5.41	20.72	318	.93	91	90.36	4.86	17.10	.06	3.52
27	925	1.028	13.08	10.59	.51	.68	.19	1.11	80.96	3.89	5.19	1.45	8.49	4.45	.91	.69	.06	.16	75.83	6.59	17.58	249	.86	100					
28	1,000	1.026	12.84	10.33	.56	.75	.19	1.01	80.45	4.36	5.84	1.48	7.86	5.04	.90	.65	.05	.20	72.22	5.55	22.22	321	.95	87					
29	960	1.027	12.36	9.49	.53	.75	.20	1.39	76.77	4.28	6.07	1.62	11.24	4.45	.91	.62	.07	.22	68.20	7.70	24.10	306	.95	63					
30	1,380	1.024	13.41	10.58	.61	.71	.21	1.30	78.90	4.54	5.29	1.56	9.69	6.48	.93	.66	.08	.18	70.97	8.60	19.46	279	.99	100	149.00	8.50	30.10	.16	3.54
Oct. 31 / Nov. 1	3,200	1.023	13.54	11.04	.58	.75	.21	.96	81.53	4.38	5.54	1.55	7.09	7.54	.94	.59	.17	.18	62.77	18.08	19.15	333	1.01	71					
Av....	1.231	1.025	13.00	10.47	.52	.70	.20	1.11	80.46	4.01	5.39	1.56	8.55	5.71	.95	.69	.07	.19	71.54	7.47	23.09	277	.92	71	23.94	1.34	4.72	.11	3.53
Nov. 2	1,480	1.022	12.92	10.43	.58	.65	.19	1.07	80.72	4.49	5.03	1.47	8.28	6.57	1.01	.71	.06	.25	70.30	5.94	24.75	309	.87	143					
3	1.240	1.027	13.44	10.69	.47	.72	.20	1.36	79.53	3.57	5.35	1.63	10.12	7.11	.92	.61	.14	.17	66.30	15.22	18.47	183	.91	42					
4	1.400	1.021	15.90	12.94	.56	.75	.22	1.43	81.38	3.51	4.71	1.38	9.00	5.99	1.15	.87	.06	.22	75.65	5.21	19.13	318	1.00	143					
5	1.165	1.031	16.47	13.19	.61	.75	.22	1.70	80.08	3.70	4.55	1.33	10.32	5.63	1.16	.83	.08	.24	71.55	6.89	20.69	297	1.02	138	149.00	8.22	23.58	0.07	2.87
6	1,240	1.028	16.53	13.52	.63	.71	.23	1.42	81.79	3.81	4.29	1.39	8.52	7.74	1.19	.89	.09	.21	74.79	7.56	17.65	363	.98	167					
7-8	2,550	1.025	14.22	11.42	.61	.65	.21	1.31	80.30	4.28	4.57	1.47	9.21	7.29	.98	.74	.07	.17	75.51	7.14	17.34	294	.94	188					
Av....	1.296	1.025	14.91	12.03	.57	.70	.21	1.33	80.63	3.89	4.75	1.44	9.24	6.72	1.07	.77	.08	.21	72.35	7.99	19.59	294	.95	138	21.28	1.17	3.37	.07	2.87

Nov. 9	1,310	1.025	13.62	10.82	.61	.72	.19	1.28	79.51	4.47	5.28	1.38	9.33	7.20	.99	.70	.08	.21	70.69	8.08	21.21	252	.85	100					
10–11	2,425	1.030	16.19	13.60	.58	.73	.23	1.05	84.00	3.58	4.51	1.42	6.48	7.02	1.31	.92	.10	.30	70.23	7.63	22.90	342	1.03	167					
12–13	2,200	1.030	14.72	12.11	.60	.63	.22	1.16	82.26	4.07	4.28	1.49	7.88	7.02	1.11	.81	.08	.23	73.64	7.27	20.91	360	.93	95	128.50	6.74	23.05	.06	3.42
14–15	2,360	1.027	13.89	11.46	.52	.66	.21	1.04	82.44	3.74	4.75	1.51	7.49	6.30	1.01	.72	.09	.21	71.29	8.91	20.79	312	.92	83					
16–17	2,540	1.026	13.98	11.29	.69	.67	.23	1.10	80.76	4.93	4.79	1.64	7.68	6.70	1.07	.75	.09	.24	70.09	8.41	22.43	375	.90	143					
18–19	2,500	1.026	14.46	11.92	.50	.69	.25	1.10	82.44	3.45	4.77	1.72	7.60	6.30	1.05	.74	.01	.30	70.48	.95	28.57	258	.92	50	180.00	9.56	33.50	.11	3.50
20, 22	2,395	1.030	14.72	12.03	.60	.64	.22	1.23	81.73	4.07	4.34	1.49	8.35	7.51	1.07	.72	.13	.22	67.29	12.15	20.56	324	.97	143					
Av....	1,210	1.026	14.51	11.89	.58	.68	.22	1.14	81.88	4.04	4.67	1.52	7.83	6.86	1.09	.76	.08	.24	70.53	7.63	22.48	317	.93	111	23.73	1.25	4.35	.08	3.46
Nov 23–24	2,200	1.029	14.13	11.57	.61	.68	.22	1.05	81.88	4.31	4.81	1.55	7.43	7.33	1.04	.77	.08	.19	74.04	7.69	18.27	240	.96	95					
25–27	2,895	1.025	14.67	11.69	.64	.79	.24	1.31	79.69	4.36	5.38	1.63	8.93	8.46	1.03	.75	.08	.20	72.82	7.76	19.42	411	1.04	100	152.00	9.04	30.35	.10	3.36
28–29	2,925	1.024	13.98	10.96	.59	.65	.25	1.53	78.40	4.22	4.65	1.78	10.94	8.46	1.02	.70	.07	.25	68.62	6.86	24.51	342	.93	91					
Nov. 30–Dec. 1	2,230	1.030	14.28	11.64	.57	.63	.22	1.22	81.50	4.00	4.41	1.54	8.55	6.43	1.09	.81	.09	.19	74.30	8.26	17.44	366	.91	91					
Dec. 2–3	2,530	1.027	15.54	12.85	.58	.65	.31	1.15	82.70	3.73	4.18	1.99	7.40	6.57	1.13	.81	.08	.24	71.70	7.08	21.22	495	1.12	167	181.00	10.15	32.64	.09	3.22
4	1,465	1.030	17.49	14.37	.65	.73	.31	1.43	82.18	3.72	4.18	1.72	8.19	6.66	1.28	.92	.10	.26	71.88	7.82	20.30	375	1.12	71					
5–6	3,060	1.022	15.45	12.56	.69	.68	.26	1.26	81.30	4.47	4.40	1.68	8.15	8.17	1.10	.78	.11	.21	70.91	10.00	19.09	373	1.00	71					
Av....	1,331	1.027	15.08	12.23	.62	.69	.26	1.28	81.09	4.11	4.57	1.69	8.51	7.44	1.10	.79	.09	.22	72.04	7.92	20.03	356	1.01	98	25.61	1.47	4.84	.09	3.29
Dec. 7–8	4,155	1.032	15.12	12.27	.68	.68	.27	1.22	81.17	4.49	4.49	1.78	8.07	6.17	1.24	.85	.07	.32	68.70	5.55	25.75	224	.87	20					
9–10	2,840	1.027	15.40	13.90	.51	.69	.25	1.05	83.77	3.31	4.48	1.62	6.82	7.56	1.16	.83	.08	.25	71.52	6.88	21.60	291	.97	111					
11	1,335	1.026	14.16	11.45	.55	.71	.24	1.21	80.86	3.88	5.03	1.69	8.54	6.57	1.10	.81	.08	.21	73.63	7.27	19.10	311	.80	19	153.00	8.87	29.78	.08	3.36
12–13	3,400	1.020	13.84	11.12	.58	.64	.22	1.28	80.40	4.19	4.62	1.59	9.20	6.17	1.03	.70	.10	.23	67.97	9.70	22.33	333	.73	17					
14–15	3,200	1.022	13.85	11.32	.52	.75	.22	1.04	81.75	3.76	5.40	1.59	7.50	6.96	1.07	.74	.07	.26	69.14	6.54	24.32	385	.87	83					
16–17	2,830	1.024	15.09	12.80	.43	.64	.25	.97	84.80	2.85	4.24	1.66	6.45	6.21	1.29	.96	.08	.25	74.41	6.20	19.39	315	1.04	55	127.00	7.42	24.84	.10	3.31
18	1,330	1.026	16.02	13.43	.54	.74	.27	1.04	83.75	3.43	4.62	1.69	6.51	6.52	1.47	1.13	.08	.26	76.92	5.45	17.63	420	1.10	91					
Av....	1,591	1.025	14.79	12.18	.54	.69	.24	1.11	82.35	3.70	4.69	1.66	7.58	6.59	1.19	.86	.08	.25	71.75	6.79	21.44	311	.91	56	23.33	1.35	4.55	.09	3.33
Jan. 4–5	2,525	1.025	14.93	12.16	.65	.87	.26	.99	81.45	4.35	5.83	1.74	6.64	6.30	1.10	.78	.10	.22	70.91	9.09	20.00	417	1.18	Tr.					
6–7	3,400	1.022	14.74	12.03	.57	.81	.28	1.05	81.60	3.86	5.50	1.90	7.14	9.13	1.22	.79	.07	.36	64.75	5.74	29.51	320	.82	71					
8	1,640	1.025	14.20	11.43	.64	.75	.27	1.11	80.50	4.51	5.28	1.90	7.81	10.48	1.07	.76	.08	.23	71.02	7.48	21.49	302	1.05	83	123.00	8.85	29.36	.08	3.32
9–10	3,030	1.022	13.27	10.86	.47	.76	.26	.92	81.84	3.54	5.73	1.96	6.93	8.27	.99	.66	.05	.28	66.67	5.05	28.28	267	.99	215					
11–12	3,180	1.024	15.01	11.96	.54	.75	.25	1.51	79.70	3.60	5.00	1.67	10.03	9.30	1.11	.78	.07	.26	70.28	6.30	23.42	283	1.04	200					
13–14	3,800	1.022	14.13	11.49	.59	.82	.26	.97	81.30	4.18	5.80	1.84	6.88	10.03	1.10	.76	.05	.29	69.06	4.55	26.39	342	1.05	281					
15	1,550	1.026	15.87	13.05	.60	.79	.26	1.17	82.22	3.78	4.98	1.64	7.37	7.91	1.24	.89	.06	.29	71.78	4.84	23.38	341	1.14	100	151.50	8.49	31.81	.08	3.75
16–17	2,375	1.029	14.19	11.48	.48	.65	.23	1.35	81.30	4.18	5.80	1.84	6.88	6.84	1.03	.74	.07	.22	71.80	6.80	21.40	321	.99	214					
Av....	1,536	1.022	14.54	11.81	.57	.78	.26	1.13	81.24	4.00	5.49	1.81	7.46	8.53	1.11	.77	.07	.27	69.53	6.23	24.23	324	1.03	145	19.60	1.24	4.65	.08	3.53
Jan. 18–19	2,320	1.031	14.25	11.68	.50	.68	.24	1.15	81.97	3.51	4.77	1.68	8.07	7.65	1.15	.76	.06	.33	66.04	5.22	28.74	255	1.02	166					
20–21	2,680	1.028	15.72	12.72	.51	.68	.25	1.56	80.94	3.25	4.32	1.58	9.91	8.19	1.09	.86	.08	.15	78.90	7.34	13.76	306	1.07	307					
22	1,350	1.027	14.07	11.59	.40	.66	.24	1.18	82.40	2.84	4.67	1.71	8.38	8.10	1.01	.74	.07	.20	73.25	6.93	19.82	258	.94	150	128.00	6.99	26.06	.06	3.80
23–24	3,700	1.020	14.15	11.56	.48	.70	.23	1.18	81.70	3.39	4.95	1.62	8.34	7.99	1.05	.76	.07	.22	72.40	6.67	20.93	333	1.06	321					
25–26	3,420	1.023	14.75	12.16	.49	.70	.23	1.17	82.45	3.32	4.75	1.56	7.92	9.08	1.11	.79	.06	.26	71.15	5.40	23.45	181	1.02	100					
27–28	3,300	1.021	14.60	11.81	.56	.66	.24	1.33	80.96	3.84	4.45	1.64	9.11	7.32	1.08	.76	.07	.25	70.42	6.48	23.10	337	.99	100	115.50	6.47	18.49	.08	2.86
29	1,330	1.027	14.49	12.02	.55	.66	.24	1.02	82.95	3.80	4.55	1.66	7.04	8.38	1.07	.78	.05	.24	72.90	4.67	22.43	315	1.02	77					
Av....	1,500	1.025	14.57	11.93	.49	.68	.24	1.23	81.91	3.42	4.64	1.78	8.39	8.10	1.08	.78	.06	.24	72.15	6.10	21.75	284	1.02	174	20.29	1.12	3.71	.07	3.33

Analytical table in full—Continued.

Subject 3—Continued.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$	$\frac{\text{Feces fat}}{\text{Feces N}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gms*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1-2																													
3-4	2,040	1.030	15.10	12.65	0.49	0.74	0.23	0.99	83.78	3.25	4.89	1.52	6.56	5.26	1.07	0.78	0.02	0.27	72.91	1.87	25.22	312	0.98	200					
5	1,600	1.027	17.15	14.08	.53	.66	.29	1.59	82.10	3.09	3.85	1.69	9.27	10.03	1.29	.94	.06	.29	72.90	4.65	22.45	285	1.05	63	76.50	4.23	15.69	0.03	3.71
6-7	3,780	1.023	16.90	14.27	.52	.78	.24	1.09	84.40	3.08	4.62	1.42	6.48	10.84	1.16	.91	.11	.14	78.45	9.48	12.07	325	1.13	115					
Av....	1,484	1.027	16.38	13.66	.51	.73	.25	1.22	83.43	3.14	4.45	1.54	7.44	8.71	1.17	.87	.06	.23	74.75	5.33	19.91	307	1.05	126	10.93	.60	2.24	.03	3.51
Feb. 8	1,720	1.017	10.10	8.01	.53	.70	.15	.71	79.37	5.19	6.93	1.48	7.03	5.88	.67	.46	.05	.16	68.70	7.46	23.84	362	.91	13					
9	1,980	1.014	7.78	5.49	.47	.70	.17	.95	70.58	6.04	9.00	2.18	12.20	6.30	.55	.30	.05	.20	54.52	9.09	36.39	174	.63	75					
10	1,395	1.017	7.45	5.02	.35	.57	.13	1.38	67.40	4.70	7.66	1.74	18.50	4.68	.55	.29	.06	.20	52.80	10.90	36.30	150	.68	59					
11	1,900	1.017	7.56	5.54	.42	.62	.09	.89	73.30	5.56	8.20	1.19	11.75	6.33	.57	.29	.05	.23	50.85	8.78	40.37	197	.72	75	142.50	8.86	24.28	.16	2.74
12	1,730	1.017	7.34	5.14	.33	.65	.15	1.07	70.00	4.50	8.85	2.05	14.60	6.33	.58	.33	.07	.18	56.82	12.08	31.10	215	.73	25					
13	1,440	1.018	7.96	5.07	.40	.68	.15	1.66	63.55	5.20	8.54	1.85	20.86	6.66	.55	.33	.03	.19	60.00	5.46	34.54	213	.67	89					
14	1,660	1.017	6.24	4.42	.48	.61	.13	.60	70.83	7.70	9.77	2.08	9.62	8.08	.53	.33	.05	.15	62.25	9.45	28.80	247	.83	50					
Av....	1,689	1.017	7.77	5.53	.43	.65	.14	1.03	70.72	5.56	8.42	1.79	13.51	6.32	.57	.33	.05	.19	57.99	9.03	33.05	223	.74	55	20.35	1.26	3.47	.16	2.74
Feb. 15-16	2,400	1.029	12.36	9.77	.61	.70	.26	1.02	79.02	4.94	5.67	2.11	8.26	8.96	1.08	.68	.04	.36	63.00	3.70	33.30	249	.95	100					
17-18	3,020	1.026	14.07	11.45	.50	.80	.24	1.08	81.32	3.55	5.68	1.78	7.67	4.66	1.02	.76	.07	.19	74.50	6.86	18.64	145	.87	143	118.50	7.16	31.21	.09	4.36
19	1,930	1.021	19.75	16.49	.61	.85	.29	1.51	83.50	3.09	4.30	1.47	7.64	9.03	1.48	1.03	.07	.38	69.60	4.73	25.67	420	1.27	188					
Av....	1,470	1.025	15.39	12.57	.57	.78	.26	1.20	81.28	3.86	5.22	1.79	7.89	7.55	1.19	.82	.06	.31	69.03	5.09	25.87	271	1.03	143	23.70	1.43	6.24	.09	4.36

Subject 4.

Oct. 20	1,000	1.028	12.30	9.86	0.40	0.74	0.25	1.05	80.16	3.25	6.01	2.03	8.53	6.66	0.92	0.71	0.08	0.13	77.17	8.69	14.10	228	0.87	100					
21	1,300	1.021	13.87	11.39	.37	.70	.24	1.17	82.12	2.66	5.04	1.73	8.44	5.58	.89	.69	.11	.10	77.53	12.47	11.23	258	1.09	25	} 43.32	2.62	8.17	0.07	3.13
22	1,490	1.022	17.56	14.23	.50	.83	.30	1.70	81.01	2.82	4.83	1.70	9.67	6.12	1.30	1.01	.06	.22	77.69	4.61	16.92	420	1.31	55					
Av....	1,263	1.024	14.58	11.83	.42	.76	.26	1.31	81.09	2.91	5.29	1.82	8.88	6.12	1.04	.80	.08	.15	77.46	8.59	14.08	302	1.09	60	14.44	.87	2.72	.07	3.13
Oct. 23	1,220	1.025	15.33	12.55	.47	.72	.26	1.33	81.87	3.06	4.69	1.69	8.67	5.99	1.19	.90	.07	.22	75.63	5.88	18.48	353	1.02	63					
24	1,910	1.020	17.46	14.26	.53	.84	.27	1.56	81.67	3.06	4.81	1.54	8.93	7.96	1.25	.88	.12	.25	70.40	9.60	20.00	359	1.15	13					
25	1,435	1.022	12.60	9.95	.43	.68	.19	1.35	78.96	3.41	5.39	1.50	10.72	5.62	.84	.60	.10	.15	71.43	11.90	17.86	279	.93	56					
26	1,310	1.023	13.77	11.01	.50	.80	.26	1.20	79.95	3.63	5.81	1.89	8.72	7.70	1.21	.90	.16	.15	74.37	12.92	12.39	326	.94	87	} 86.64	5.25	16.33	.06	3.11
27	1,820	1.018	13.64	11.11	.48	.73	.23	1.09	81.45	3.51	5.35	1.68	7.98	5.46	.89	.65	.09	.15	73.04	10.11	16.82	306	1.06	20					
28	1,670	1.020	12.58	9.99	.56	.77	.22	1.03	79.41	4.45	6.12	1.74	8.18	8.00	.97	.71	.08	.18	73.20	8.24	18.56	247	.93	19					
29	1,840	1.017	14.05	11.50	.57	.75	.22	1.01	81.85	4.05	5.33	1.56	7.19	7.34	.94	.67	.12	.15	71.27	12.77	15.95	383	.97	14					
30	1,750	1.019	14.24	11.21	.59	.73	.24	1.47	78.72	4.14	5.12	1.68	10.32	6.62	1.00	.73	.10	.17	73.00	10.00	17.00	329	1.06	23	} 130.00	9.08	26.08	.16	2.87
Oct. 31–Nov. 1	2,850	1.024	12.24	9.70	.53	.70	.23	1.08	79.24	4.33	5.72	1.88	8.82	7.38	.87	.61	.11	.15	70.12	12.76	17.24	384	1.01	100					
Av....	1,581	1.021	13.99	11.25	.52	.75	.23	1.23	80.35	3.74	5.37	1.68	8.84	6.89	1.02	.74	.09	.17	72.49	10.46	17.14	329	1.01	44	21.86	1.43	4.24	.11	2.99
Nov. 2	1,080	1.027	11.00	8.88	.45	.65	.18	.84	80.72	4.09	5.91	1.64	7.63	6.48	.90	.59	.09	.23	65.56	10.00	25.55	291	.87	24					
3	1,455	1.025	12.09	9.70	.38	.73	.20	1.08	80.22	3.15	6.04	1.65	8.94	7.42	.93	.62	.11	.19	66.67	11.93	20.43	213	.82	91					
4	1,600	1.021	12.77	9.99	.47	.78	.20	1.33	78.23	3.68	6.11	1.56	10.41	2.69	.95	.63	.07	.25	66.32	7.36	26.32	246	.78	71					
5	1,600	1.023	14.21	10.99	.47	.79	.26	1.70	77.34	3.30	5.55	1.83	11.96	7.49	1.13	.78	.10	.25	69.03	8.85	22.12	278	1.00	167	} 223.00	14.15	37.00	.14	2.61
6	1,750	1.020	14.73	11.98	.48	.65	.21	1.41	81.33	3.25	4.41	1.42	9.58	8.40	1.13	.82	.09	.22	72.59	7.96	19.47	326	1.03	77					
7–8	3,100	1.027	17.33	13.77	.74	.92	.31	1.59	79.45	4.29	5.31	1.78	9.17	8.14	1.35	.96	.18	.21	71.11	13.33	15.55	450	1.24	91					
Av....	1,512	1.024	13.69	10.85	.50	.75	.23	1.32	79.55	3.62	5.56	1.65	9.61	6.77	1.06	.73	.11	.22	68.54	9.90	21.57	3.01	.96	87	31.85	2.02	5.28	.14	2.61
Nov. 9	1,105	1.026	12.00	9.35	.40	.75	.18	1.32	77.92	3.33	6.25	1.50	11.00	6.71	.92	.62	.10	.20	67.39	10.87	21.74	237	.70	63					
10–11	3,550	1.020	13.90	11.32	.57	.82	.23	.96	81.43	4.10	5.90	1.65	6.92	7.19	1.12	.78	.09	.25	69.64	8.03	22.32	117	1.04	91	} 114.50	6.99	20.70	.07	2.96
12–13	2,910	1.025	14.48	11.76	.53	.73	.24	1.22	81.21	3.65	5.04	1.65	8.42	7.51	1.00	.67	.14	.19	67.00	14.00	19.00	393	1.15	95					
14–15	2,600	1.025	13.23	10.97	.46	.67	.22	.91	82.92	3.47	5.06	1.66	6.87	6.75	1.03	.73	.10	.20	70.87	9.70	19.42	288	.95	83					
16–17	2,320	1.027	13.65	11.23	.50	.68	.24	1.00	82.27	3.66	4.98	1.75	7.32	6.57	1.02	.69	.11	.22	67.65	10.78	21.57	345	.94	25					
18–19	2,500	1.026	14.52	11.89	.44	.63	.24	1.32	81.89	3.03	4.34	1.65	9.68	6.12	1.02	.73	.09	.20	71.57	8.82	19.61	378	1.08	43	} 188.00	10.15	37.35	.12	3.68
20, 22	2,750	1.022	12.99	10.42	.40	.68	.22	1.27	80.22	3.09	5.23	1.69	9.75	7.20	1.02	.73	.08	.21	71.57	7.84	20.59	291	.97	77					
Av....	1,364	1.024	13.54	10.99	.47	.71	.22	1.14	81.12	3.47	5.26	1.65	8.56	6.86	1.02	.71	.10	.21	69.38	10.01	20.61	293	.98	68	23.27	1.32	4.46	.09	3.32
Nov. 23–24	1,890	1.028	11.10	8.67	.45	.68	.25	1.05	78.11	4.05	6.12	2.25	9.45	5.22	.91	.64	.11	.16	70.33	12.22	17.57	297	.81	83					
25, 27	2,975	1.027	14.28	11.81	.43	.72	.30	1.02	82.70	3.01	5.04	2.10	7.12	8.01	1.08	.74	.09	.24	68.52	8.33	22.22	312	.98	Tr.	} 118.00	6.57	20.95	.09	3.19
28, 29	2,010	1.024	9.75	7.76	.31	.47	.19	1.02	79.59	3.17	4.82	1.94	10.46	5.76	.71	.44	.08	.19	61.97	11.27	26.76	180	.63	91					
Nov. 30–Dec. 1	2,490	1.026	12.21	10.08	.42	.68	.23	.80	82.58	3.44	5.56	1.88	6.54	7.06	.95	.65	.11	.19	68.48	11.52	20.00	294	.85	20					
Dec. 2–3	3,075	1.024	12.72	10.08	.50	.71	.26	1.17	79.25	3.94	5.55	2.05	9.21	8.41	.97	.61	.15	.21	62.90	15.93	21.17	397	1.01	25	} 226.50	13.05	50.26	.13	3.85
4	1,480	1.027	13.77	11.05	.47	.71	.29	1.25	80.24	3.41	5.15	2.12	9.08	8.86	1.03	.74	.10	.19	71.84	9.71	18.45	387	1.03	20					
5–6	3,080	1.020	10.90	8.70	.39	.61	.26	.94	79.78	3.58	5.60	2.38	8.66	7.30	.70	.53	.09	.08	75.73	12.85	11.42	271	.79	50					
Av....	1,308	1.025	12.10	9.73	.42	.65	.25	1.03	80.32	3.51	5.41	2.10	8.65	7.23	.91	.62	.10	.18	68.54	11.69	19.65	305	.87	41	26.50	1.51	5.47	.11	3.52

Analytical table in full—Continued.

Subject 4—Continued.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2)	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$	$\frac{\text{Feces fat}}{\text{Feces N}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Dec. 7–8	3,400	1.023	13.84	11.17	0.41	0.75	0.25	1.26	80.69	2.96	5.42	1.81	9.12	8.00	1.06	0.73	0.09	0.24	68.94	8.45	22.61	306	0.96	20					
9–10	4,000	1.020	13.64	11.62	.38	.64	.26	.74	85.20	2.79	4.69	1.90	5.42	7.62	1.06	.74	.08	.24	69.84	7.55	22.61	336	1.13	154					
11	1,730	1.023	13.94	11.20	.46	.65	.26	1.37	80.40	3.28	4.66	1.85	9.81	7.06	1.16	.87	.12	.17	75.00	10.34	14.66	367	.85	Tr.	269.50	15.68	62.48	0.16	4.06
12–13	2,960	1.023	11.57	9.85	.35	.56	.21	.60	85.13	3.03	4.84	1.82	5.18	6.25	.94	.66	.10	.18	70.23	10.64	19.13	297	.89	17					
14–15	3,220	1.026	15.96	12.95	.41	.77	.25	1.58	81.15	2.57	4.83	1.57	9.88	8.31	1.20	.85	.12	.23	70.85	10.00	19.15	350	1.16	20					
16–17	2,800	1.030	16.28	13.36	.38	.73	.28	1.53	82.06	2.33	4.48	1.72	9.41	7.74	1.33	.97	.13	.23	72.93	9.78	17.29	423	1.19	83	297.50	16.26	77.01	.20	4.73
18	1,400	1.028	16.47	13.47	.42	.73	.27	1.58	81.78	2.55	4.45	1.64	9.58	7.24	1.21	.90	.09	.22	74.37	7.44	18.19	.....	1.16	63					
Av....	1,626	1.025	14.53	11.95	.40	.69	.25	1.24	82.34	2.79	4.77	1.76	8.34	7.46	1.14	.81	.10	.21	71.74	9.17	19.09	346	1.05	51	47.25	2.66	11.62	.18	4.39
Jan. 4–5	3,250	1.023	15.71	13.11	.51	.72	.26	1.11	83.45	3.25	4.59	1.65	7.05	8.43	1.21	.89	.10	.22	73.55	8.26	18.18	384	1.17	125					
6–7	4,340	1.019	16.68	14.25	.54	.79	.29	.81	85.43	3.24	4.73	1.74	4.86	9.37	1.30	.88	.11	.31	67.70	8.46	23.84	208	1.01	125	113.00	6.37	26.20	.05	4.11
8	2,175	1.021	16.16	13.01	.53	.90	.29	1.40	80.69	3.28	5.57	1.79	8.66	9.46	1.33	.91	.13	.29	68.42	9.77	21.81	418	1.23	31					
9–10	4,190	1.019	13.81	11.17	.39	.77	.31	1.17	80.87	2.82	5.58	2.24	8.47	9.74	1.08	.74	.07	.27	68.52	6.48	25.00	289	.99	56					
11–12	3,890	1.021	14.73	11.82	.43	.84	.27	1.37	80.30	2.94	5.70	1.83	9.23	9.33	1.14	.78	.10	.26	68.42	8.77	22.81	330	1.11	200					
13–14	4,075	1.022	15.40	12.66	.49	.79	.28	1.18	82.30	3.18	5.06	1.82	7.64	10.14	1.16	.82	.07	.27	70.66	6.02	23.32	399	1.18	215	208.00	12.86	37.79	.11	2.93
15	2,280	1.020	16.37	13.75	.45	.84	.28	1.05	83.98	2.75	5.13	1.71	6.42	8.96	1.28	.89	.11	.28	69.50	8.60	21.90	356	1.18	107					
16–17	3,610	1.022	14.44	12.27	.40	.77	.24	.76	84.98	2.77	5.33	1.66	5.26	7.15	1.06	.76	.11	.19	71.70	10.37	17.93	361	1.14	66					
Av....	1,986	1.021	15.41	12.76	.47	.80	.28	1.11	82.75	3.03	5.21	1.80	7.20	9.07	1.19	.83	.10	.26	69.81	8.34	21.85	343	1.13	116	22.92	1.37	4.57	.08	3.52
Jan. 18–19	3,420	1.023	14.33	11.54	.43	.73	.25	1.38	80.53	3.01	5.09	1.74	9.63	8.39	1.25	.82	.07	.36	65.60	5.60	28.80	328	1.15	200					
20–21	3,280	1.024	15.88	13.01	.44	.74	.28	1.41	81.79	2.77	4.66	1.76	8.84	8.61	1.24	.92	.11	.21	74.20	8.87	16.93	318	1.03	154	205.00	12.14	26.59	.11	2.19
22	1,885	1.020	15.95	13.42	.42	.75	.25	1.11	81.12	2.63	4.71	1.58	6.96	8.37	1.11	.80	.08	.23	72.00	7.20	20.80	370	1.05	75					
23–24	4,000	1.019	14.80	11.82	.46	.77	.25	1.50	79.87	3.11	5.20	1.69	10.13	8.04	1.07	.75	.06	.26	70.10	5.60	24.30	376	1.07	133					

25–26	3,630	1.021	13.70	11.20	.38	.75	.22	1.15	81.77	2.77	5.47	1.60	8.39	7.62	1.04	.73	.08	.23	70.20	7.69	22.19	203	.99	150	227.00	13.51	37.04	.14	2.74
27–28	3,180	1.019	11.30	9.17	.31	.56	.17	1.09	81.16	2.74	4.95	1.51	9.64	6.06	.86	.62	.05	.19	72.08	5.82	22.10	245	.82	100					
29	1,500	1.022	12.45	10.30	.35	.65	.23	.92	82.72	2.81	5.22	1.85	7.40	7.38	.90	.68	.06	.16	75.55	6.67	17.78	225	.78	50					
30–31	3,500	1.022	16.95	13.75	.43	.80	.27	1.70	81.13	2.54	4.72	1.59	10.02	6.94	1.18	.87	.07	.24	73.74	5.93	20.30	438	1.23	41					
Av....	1,747	1.021	14.42	11.78	.40	.71	.24	1.28	81.64	2.81	5.00	1.67	8.88	7.68	1.08	.77	.07	.24	71.68	6.67	21.65	313	1.01	113	30.71	1.83	4.54	.12	2.47
Feb. 1–2	2,910	1.026	17.19	14.44	.56	.75	.28	1.16	84.00	3.26	4.36	1.63	6.75	7.43	1.36	1.02	.10	.24	75.00	7.36	17.64	408	1.20	84	161.50	9.54	19.70	.08	2.09
3–4	3,030	1.024	15.01	12.59	.45	.73	.26	.98	83.88	3.00	4.86	1.73	6.53	7.91	1.13	.80	.11	.22	70.83	9.72	19.45	385	1.05	154					
5	1,280	1.029	15.21	12.53	.43	.62	.25	1.38	82.40	2.83	4.07	1.64	9.06	7.47	1.19	.89	.08	.22	74.80	6.72	18.48	468	1.22	77					
6–7	4,300	1.019	16.00	13.10	.40	.69	.25	1.56	81.90	2.50	4.30	1.57	9.73	8.40	.97	.72	.09	.16	74.22	9.28	16.50	327	1.21	231					
Av....	1,646	1,025	15.85	13.16	.46	.69	.26	1.27	83.04	2.89	4.39	1.66	8.02	7.80	1.16	.88	.09	.21	73.71	8.27	18.02	397	1.17	136	23.07	1.36	2.81	.08	2.09
Feb. 8	1,425	1.018	9.24	7.12	.46	.68	.15	.83	77.15	4.88	7.36	1.62	8.99	4.98	.65	.38	.09	.18	58.45	13.85	27.70	321	.70	33	101.00	6.16	16.90	.13	2.75
9	2,030	1.013	8.07	5.18	.47	.66	.16	1.60	64.21	5.83	8.18	1.98	19.80	6.33	.53	.27	.09	.17	50.95	17.00	32.05	211	.65	75					
10	2,545	1.012	6.72	4.75	.39	.76	.15	.67	70.70	5.80	11.30	2.23	9.97	5.35	.62	.27	.08	.27	43.55	12.90	43.55	208	.46	53					
11	2,070	1.013	5.64	3.71	.37	.64	.09	.83	65.80	6.56	11.35	1.59	14.70	3.60	.49	.20	.06	.23	40.85	12.25	46.90	273	.79	94					
12	1,790	1.011	5.13	2.93	.36	.74	.13	.97	57.15	7.02	14.40	2.53	18.90	3.44	.50	.25	.04	.21	50.00	8.00	42.00	229	.71	16					
13	2,140	1.013	5.14	3.22	.29	.73	.15	.75	62.64	5.64	14.20	2.92	14.60	5.40	.51	.27	.06	.18	52.95	11.75	35.30	197	.75	19					
14	1,720	1.013	5.36	3.68	.31	.58	.12	.67	68.66	5.78	10.82	2.24	12.50	4.28	.45	.23	.07	.15	51.10	15.55	33.35	203	.71	21					
Av....	1,960	1.013	6.47	4.37	.38	.68	.14	.90	66.62	5.93	11.09	2.16	14.21	4.77	.51	.27	.07	.18	49.69	13.04	37.26	235	.68	44	14.43	.88	2.41	.13	2.75
Feb.15–16	2,490	1.025	10.47	8.04	.43	.71	.25	1.04	76.90	4.11	6.68	2.39	9.92	6.04	.99	.57	.09	.33	57.57	9.09	33.34	252	.89	100	246.50	17.50	38.91	.18	2.22
17–18	3,590	1.021	14.18	11.48	.43	.77	.27	1.23	80.96	3.03	5.42	1.91	8.67	8.94	1.11	.76	.09	.26	68.45	8.13	23.42	146	.86	10					
19	1,800	1.022	14.50	11.80	.47	.75	.25	1.23	81.40	3.24	5.17	1.72	8.47	7.66	1.10	.77	.07	.26	70.00	6.37	23.63	381	.92	75					
20–21	3,010	1.023	14.40	11.84	.41	.79	.28	1.08	82.21	2.85	5.49	1.95	7.50	7.11	1.13	.79	.07	.27	69.91	6.19	23.90	336	1.05	38					
22–23	2,760	1.024	14.15	11.74	.41	.67	.25	1.08	83.00	2.90	4.70	1.77	7.63	6.52	1.02	.70	.10	.22	68.64	9.80	21.56	306	.96	125	116.50	7.05	26.77	.06	3.80
24–25	3,350	1.022	15.45	12.98	.42	.73	.27	1.05	84.00	2.72	4.73	1.75	6.80	6.58	1.24	.82	.12	.30	66.12	9.68	24.20	355	1.01	83					
26	1,780	1.022	14.06	11.66	.42	.82	.26	.90	82.95	2.98	5.82	1.85	6.40	8.17	1.19	.79	.10	.30	66.40	8.40	25.20	360	.94	50					
27–28	3,020	1.027	15.42	12.75	.35	.76	.27	1.29	82.67	2.27	4.93	1.75	8.36	7.66	1.19	.85	.09	.25	71.44	7.56	21.00	305	1.02	52					
Av....	1,557	1.023	14.08	11.54	.42	.75	.26	1.11	81.76	3.01	5.37	1.89	7.97	7.34	1.12	.76	.09	.27	67.32	8.15	24.53	305	.96	67	25.92	1.75	4.69	.12	3.01
Mar. 1–2	3,100	1.023	14.80	12.13	.49	.80	.28	1.10	81.97	3.31	5.40	1.89	7.43	7.25	1.10	.76	.10	.24	69.10	9.09	21.81	387	1.06	.....	271.00	16.14	38.91	.14	2.41
3–4	3,310	1.024	15.30	12.50	.35	.73	.29	1.43	81.69	2.29	4.77	1.89	9.36	7.80	1.26	.82	.11	.33	65.08	8.73	26.19	384	1.17	55					
5	1,740	1.025	17.30	14.04	.46	.75	.31	1.74	81.16	2.66	4.34	1.79	10.05	8.88	1.25	.88	.11	.26	70.40	8.80	20.80	397	1.21	28					
6–7	3,520	1.022	15.39	12.35	.44	.88	.25	1.47	80.24	2.86	5.72	1.62	9.56	7.60	1.09	.76	.08	.25	69.72	7.34	22.94	376	1.21	29					
Av....	1,667	1.021	15.69	12.75	.44	.79	.28	1.44	81.26	2.78	5.06	1.79	9.10	7.88	1.18	.80	.10	.27	68.58	8.49	22.94	386	1.17	28	38.71	2.30	5.56	.14	2.41
Mar. 8–9	3,300	1.024	15.68	13.35	.51	.86	.31	.65	85.10	3.25	5.48	1.98	4.18	5.35	1.32	.90	.12	.30	68.20	9.09	22.71	324	1.15	143	66.50	4.08	8.84	.03	2.19
10–11	3,740	1.024	18.30	15.35	.55	.94	.27	1.19	83.90	3.00	5.13	1.47	6.50	9.03	1.41	.99	.10	.32	70.21	7.09	22.70	428	1.27	100					
12	1,950	1.022	16.91	13.78	.67	.78	.28	1.40	81.50	3.96	4.62	1.56	8.27	8.60	1.41	.99	.11	.31	70.21	7.79	22.00	546	1.27	375					
13–14	3,420	1.020	13.76	11.42	.38	.80	.24	.92	82.99	2.70	5.83	1.74	6.68	7.59	1.07	.71	.06	.30	66.35	5.61	28.04	329	1.02	75					
15	1,555	1.023	13.00	10.61	.36	.70	.24	1.09	81.61	2.77	5.39	1.85	8.38	7.65	1.06	.68	.09	.29	64.15	8.49	27.36	302	.94	25	82.50	5.18	......	.37	.....
Av....	1,746	1.023	15.53	12.90	.49	.81	.27	1.05	83.02	3.15	5.29	1.72	6.80	7.64	1.25	.85	.09	.30	67.82	7.61	24.56	386	1.13	144	18.62	1.15	1.26	.20	2.19

Analytical table in full—Continued.

Subject 5.

Date.	Urine. Volume.	Urine. Specific gravity.	Urine nitrogen. Total (N_2).	Urine nitrogen. Urea (N_2).	Urine nitrogen. Ammonia (N_2).	Urine nitrogen. Kreatinin (N_2).	Urine nitrogen. Uric acid (N_2).	Urine nitrogen. Rest (N_2).	Per cent of total nitrogen. Urea.	Per cent of total nitrogen. Ammonia.	Per cent of total nitrogen. Kreatinin.	Per cent of total nitrogen. Uric acid.	Per cent of total nitrogen. Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Urine sulphur. Inorganic (S).	Urine sulphur. Ethereal (S).	Urine sulphur. Neutral (S).	Per cent of total sulphur. Inorganic.	Per cent of total sulphur. Ethereal.	Per cent of total sulphur. Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Feces. Nitrogen (N_2).	Feces. Fat.	Feces N / Urine N.	Feces fat / Feces N.
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,700	1.020	12.99	10.71	0.51	0.69	0.23	0.87	82.45	3.93	5.15	1.77	6.69	6.73	0.88	0.66	0.07	0.15	75.00	7.95	17.05	282	1.07	7					
21	2,240	1.020	12.07	9.78	.43	.66	.25	.95	81.00	3.57	5.48	2.07	7.88	8.06	.86	.59	.10	.17	68.60	11.63	19.77	175	1.26	250	45.40	3.00	7.47	0.08	2.49
22	1,140	1.020	11.34	8.83	.56	.66	.20	1.09	77.87	4.93	5.82	1.76	9.61	5.22	.89	.58	.14	.17	65.17	15.73	19.10	270	.73	71					
Av....	1,693	1.020	12.13	9.77	.50	.64	.23	.97	80.44	4.14	5.48	1.87	8.06	6.67	.88	.61	.10	.16	69.59	11.77	18.64	242	1.02	109	15.13	1.00	2.49	.08	2.49
Oct. 23	1,085	1.030	12.60	10.07	.40	.62	.22	1.29	79.93	3.17	4.92	1.74	10.24	7.51	.99	.70	.06	.23	70.70	6.06	23.23	158	.80	71					
24	1,625	1.019	11.94	9.54	.46	.64	.19	1.11	79.90	3.85	5.36	1.59	9.29	5.81	.94	.69	.05	.20	73.40	5.31	21.28	177	.71	87					
25	1,240	1.020	11.01	8.69	.43	.59	.18	1.12	78.93	3.91	5.36	1.63	10.16	4.77	.78	.51	.03	.24	65.38	3.84	30.77	215	.68	83					
26	1,120	1.024	10.82	8.86	.56	.59	.19	.62	81.88	5.17	5.45	1.75	5.73	5.67	.91	.66	.11	.14	72.53	12.20	15.38	231	.84	143	91.10	6.00	14.94	.08	2.49
27	1,160	1.023	10.91	8.34	.60	.63	.18	1.16	76.44	5.49	5.77	1.65	10.63	5.26	.80	.62	.05	.13	77.50	6.25	16.25	204	.72	87					
28	1,240	1.023	11.12	8.69	.58	.67	.20	.98	78.14	5.21	6.02	1.79	8.81	7.06	.77	.54	.06	.18	70.13	7.79	23.38	198	.86	111					
29	1,920	1.017	11.87	9.50	.49	.69	.21	.99	80.03	4.13	5.81	1.77	8.34	7.32	.80	.58	.06	.16	72.50	7.50	20.00	246	.91	17					
30	1,400	1.020	10.80	8.15	.82	.61	.19	1.03	75.46	7.59	5.64	1.76	9.53	7.06	.86	.60	.06	.20	69.77	6.97	23.26	156	.72	80	136.50	9.40	21.78	.20	2.32
Oct. 31, Nov. 1	2,990	1.023	12.09	9.41	.61	.67	.20	1.20	77.83	5.04	5.54	1.65	9.92	6.93	.85	.61	.06	.18	71.77	7.05	21.18	300	.85	100					
Av....	1,378	1.022	11.46	9.03	.55	.63	.19	1.05	78.73	4.84	5.54	1.70	9.18	6.37	.85	.61	.06	.18	71.52	6.99	21.64	209	.79	86	22.76	1.54	3.67	.14	2.40
Nov. 2	1,375	1.024	9.99	7.83	.47	.64	.19	.86	78.38	4.70	6.40	1.90	8.61	7.65	.82	.53	.07	.22	64.64	8.53	26.83	237	.75	74					
3	1,400	1.019	10.08	7.70	.40	.65	.19	1.14	76.39	3.96	6.44	1.88	11.31	5.53	.79	.46	.05	.27	58.23	6.33	34.18	183	.77	63					
4	1,310	1.024	11.33	8.63	.49	.67	.21	1.33	76.16	4.32	5.91	1.85	11.73	5.09	.87	.58	.04	.25	66.67	4.59	28.74	231	.87	91					
5	1,435	1.024	11.97	9.08	.46	.67	.25	1.51	75.88	3.84	5.59	2.08	12.61	6.53	.99	.66	.07	.27	66.67	7.07	27.26	213	.83	91	167.00	11.14	22.49	.15	2.02
6	1,500	1.023	13.92	11.22	.53	.67	.24	1.26	80.62	3.85	4.80	1.83	8.91	8.23	1.00	.65	.10	.25	65.00	10.00	25.00	240	.91	100					
7–8	2,300	1.016	6.99	5.59	.29	.33	.11	.67	79.97	4.14	4.72	1.57	9.58	3.29	.48	.33	.04	.11	68.75	8.23	23.12	123	.43	50					
Av....	1,331	1.021	10.71	8.34	.44	.60	.20	1.13	77.90	4.13	5.64	1.85	10.46	6.05	.82	.53	.06	.26	64.99	7.46	27.52	204	.76	78	23.85	1.59	3.21	.15	2.02

Nov. 9	1,370	1.021	12.17	9.61	.50	.66	.21	1.19	78.97	4.11	5.43	1.72	9.77	6.57	.91	.62	.04	.25	68.13	4.39	27.47	234	.82	143					
10–11	3,060	1.020	12.23	9.91	.52	.67	.23	.90	81.03	4.25	5.48	1.88	7.35	6.16	1.01	.66	.07	.29	65.35	6.93	28.71	210	.90	71					
12–13	2,740	1.022	11.85	9.40	.49	.59	.21	1.16	79.32	4.13	4.98	1.85	9.78	6.21	.88	.56	.08	.24	63.64	9.09	27.27	273	.89	182	15[illegible].00	10.39	22.60	.12	2.18
14–15	2,640	1.020	11.43	9.30	.48	.59	.21	.85	81.37	4.19	5.16	1.83	7.43	5.53	.84	.59	.04	.21	70.24	4.76	25.00	219	.77	91					
16–17	2,690	1.022	11.12	8.82	.54	.59	.21	.94	79.45	4.85	5.30	1.88	8.46	5.49	.84	.55	.06	.23	64.74	7.14	27.38	234	.86	83					
18–19	2,800	1.021	10.65	8.33	.40	.55	.22	1.15	78.22	3.76	5.16	2.06	10.80	5.49	.83	.56	.07	.20	65.47	8.44	24.09	216	.77	56	156.50	10.63	22.76	.15	2.14
20–22	2,710	1.021	12.15	9.86	.52	.57	.21	.99	81.15	4.26	4.69	1.72	8.14	4.58	.88	.59	.05	.24	67.05	5.68	27.28	240	.....	167					
Av....	1,384	1.021	11.66	9.32	.49	.60	.21	1.03	79.93	4.22	5.17	1.85	8.82	5.72	.88	.59	.06	.24	66.36	6.63	26.76	232	.83	113	23.78	1.62	3.49	.13	2.16
Nov. 23-24	2,610	1.024	12.02	9.74	.54	.59	.20	.95	81.03	4.49	4.90	1.66	7.90	6.25	.92	.64	.07	.21	69.56	7.60	22.82	249	.90	91					
25, 27	3,050	1.021	12.30	10.12	.52	.65	.26	.75	82.27	4.22	5.28	2.11	6.09	6.76	.97	.64	.08	.25	65.98	8.24	25.77	226	.86	143	138.50	8.46	23.43	.11	2.77
28–29	2,875	1.021	11.97	9.53	.57	.62	.22	1.03	79.62	4.75	5.18	1.83	8.60	6.21	.88	.61	.07	.21	69.32	7.95	23.87	264	.88	83					
Nov. 30, Dec. 1	2,925	1.022	13.20	10.81	.52	.60	.23	1.04	82.00	3.94	4.54	1.74	7.78	6.61	.92	.62	.08	.22	67.40	8.70	23.90	276	.88	133					
2-3	3,500	1.020	13.47	10.86	.51	.68	.24	1.18	80.65	3.78	5.02	1.78	8.77	8.30	.93	.66	.07	.20	70.97	7.53	21.50	350	1.02	19	147.00	9.99	21.85	.11	2.19
4	1,655	1.022	12.50	9.95	.64	.56	.25	1.10	79.66	5.06	4.48	2.00	8.80	7.90	.90	.62	.09	.19	68.90	10.00	21.10	341	.95	20					
5-6	3,530	1.016	10.50	8.53	.44	.53	.22	.78	81.25	4.19	5.02	2.09	7.45	6.09	.82	.50	.08	.24	61.00	9.76	29.24	219	.41	111					
Av....	1,550	1.021	12.28	9.93	.53	.60	.23	.98	80.93	4.35	4.92	1.90	7.91	6.88	.91	.61	.08	.22	67.59	8.54	24.03	275	.84	86	21.96	1.42	3.48	.11	2.48
Dec. 7-8	2,950	1.023	13.23	10.70	.49	.65	.25	1.14	80.90	3.70	4.91	1.89	8.60	6.88	.94	.72	.06	.16	76.60	6.38	17.02	282	.97	33					
9-10	4,050	1.019	12.80	10.79	.51	.61	.26	.63	84.30	3.98	4.76	2.03	4.93	7.96	1.06	.71	.07	.28	66.98	6.60	26.42	291	.99	200					
11	970	1.030	12.54	10.19	.46	.62	.23	1.04	81.25	3.67	4.95	1.83	8.30	4.77	1.04	.74	.07	.23	71.10	6.81	22.09	357	.98	91	170.00	10.98	24.80	.12	2.26
12-13	3,360	1.020	13.00	11.04	.46	.64	.22	.64	84.85	3.54	5.00	1.69	4.92	6.96	1.05	.68	.06	.31	64.78	5.71	29.51	248	.89	20					
14-15	2,700	1.024	12.60	10.09	.50	.67	.23	1.11	80.00	3.97	5.32	1.83	8.88	6.34	.94	.62	.10	.22	66.00	10.60	23.40	255	.90	33					
16-17	3,300	1.021	14.10	11.50	.61	.64	.27	1.08	81.50	4.35	4.58	1.91	7.66	7.03	1.02	.74	.07	.21	72.54	6.86	20.60	228	.93	83	157.50	10.07	31.75	.14	3.15
18	1,275	1.024	14.31	11.78	.54	.67	.25	1.03	82.34	4.05	4.68	1.74	7.19	5.40	1.08	.76	.07	.25	70.37	6.48	23.15	360	.94	77					
Av....	1,550	1.023	13.22	10.87	.51	.64	.24	.95	82.16	3.89	5.17	1.84	7.21	6.48	1.02	.71	.07	.24	69.77	7.06	23.17	289	.94	77	27.29	1.75	4.71	.13	2.80
Jan. 4-5	2,390	1.021	7.77	6.20	.28	.48	.15	.66	79.78	3.60	6.18	1.93	8.49	6.66	.56	.37	.05	.14	66.07	8.93	25.00	138	.66	100					
6–7	3,510	1.019	11.89	9.72	.48	.60	.24	.85	81.75	4.03	5.05	2.02	7.15	8.11	.96	.64	.07	.25	66.67	7.28	26.05	246	.98	111					
8	1,440	1.021	8.93	7.23	.32	.52	.23	.63	81.00	3.58	5.82	2.57	7.03	7.11	.68	.43	.06	.19	63.24	8.82	27.94	132	.52	84	102.50	6.02	20.99	0.07	3.49
9–10	3,800	1.018	13.60	10.84	.56	.75	.22	1.23	79.71	4.12	5.51	1.62	9.04	6.73	1.06	.70	.08	.28	66.04	7.55	26.41	293	.79	154					
11–12	3,190	1.022	12.22	9.87	.41	.64	.23	1.07	80.78	3.35	5.24	1.88	8.75	6.94	.96	.64	.07	.25	66.67	7.29	26.04	204	.94	200					
13–14	3,680	1.021	13.47	10.90	.56	.68	.27	1.06	80.91	4.16	5.05	2.00	7.87	9.27	1.00	.71	.03	.26	71.00	3.00	26.00	309	.96	41					
15	2,100	1.021	15.54	12.94	.58	.76	.29	.97	83.27	3.73	4.89	1.87	6.24	7.31	1.25	.92	.04	.29	73.60	3.20	23.20	328	1.19	150	155.50	9.05	26.89	.09	2.97
16–17	2,890	1.023	12.96	10.67	.47	.56	.21	1.05	82.32	3.63	4.31	1.62	8.12	6.43	.94	.65	.07	.22	69.10	7.45	23.45	282	.83	187					
Av....	1,643	1.021	12.04	9.79	.45	.62	.25	.94	81.19	3.78	5.26	1.93	7.84	7.32	.93	.63	.06	.23	67.79	6.69	25.51	241	.86	128	18.43	1.07	3.42	.08	3.23
Jan. 19	1,310	1.023	11.25	9.25	.41	.63	.21	.75	82.22	3.64	5.60	1.87	6.67	6.75	1.00	.60	.06	.34	60.00	6.00	34.00	240	.94	100					
20–21	3,000	1.023	13.50	10.96	.44	.68	.26	1.16	81.19	3.26	5.03	1.92	8.60	7.69	1.08	.76	.08	.24	69.40	7.40	22.20	195	.90	125					
22	1,310	1.024	11.94	9.90	.38	.60	.22	.84	83.00	3.14	5.00	1.84	7.02	7.02	.89	.64	.06	.19	71.90	6.74	21.36	270	.80	63	162.50	9.74	28.01	.13	2.89
23–24	3,100	1.023	11.90	9.58	.31	.60	.24	1.17	80.50	2.65	5.02	2.00	9.83	7.91	.89	.61	.05	.23	68.53	5.61	25.86	167	.77	200					
25–26	1,850	1.025	13.44	11.07	.51	.67	.23	.96	82.12	3.80	5.22	1.71	7.15	2.79	.94	.62	.05	.27	66.00	5.30	28.70	255	.66	200					
27–28	2,720	1.021	15.42	12.72	.57	.62	.25	1.26	82.50	3.69	4.02	1.62	8.17	2.70	1.12	.81	.07	.24	72.35	6.25	21.40	270	1.09	100					
29	1,440	1.023	13.38	10.89	.57	.56	.29	1.07	81.45	4.26	4.18	2.17	7.94	7.42	.98	.75	.05	.18	76.65	5.05	18.30	336	1.03	100	122.00	7.40	32.05	.07	4.33
30–31	3,400	1.019	11.39	9.27	.47	.55	.20	.90	81.35	4.13	4.84	1.76	7.92	6.22	.78	.54	.05	.19	69.21	6.42	24.37	222	.70	25					
Av....	1,395	1.023	12.78	10.45	.46	.61	.24	1.01	81.79	3.57	4.86	1.86	7.91	6.06	.96	.67	.06	.23	69.25	6.09	24.52	244	.86	114	21.87	1.24	4.61	.10	3.61

Analytical table in full—Continued.

Subject 5—Continued.

Date.	Urine.																								Feces.				
			Urine nitrogen.													Urine sulphur.													
									Per cent of total nitrogen.											Per cent of total sulphur.									
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$	$\frac{\text{Feces fat}}{\text{Feces N}}$
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gm.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1–2	1,910	1.028	13.41	11.11	0.53	0.64	0.23	0.90	82.87	3.95	4.77	1.71	6.70	4.32	1.02	0.76	0.06	0.20	74.52	5.88	19.60	333	0.95	100					
3–4	2,900	1.021	11.45	9.16	.53	.65	.23	.88	80.00	4.63	5.68	2.01	7.68	7.02	.84	.57	.07	.20	67.84	8.34	23.82	207	.84	154					
5	1,200	1.028	11.43	9.21	.42	.63	.25	.92	80.60	3.67	5.50	2.18	8.05	8.73	1.01	.70	.08	.23	69.29	7.93	22.78	297	.90	50	126.00	7.46	20.48	.08	2.74
6–7	2,500	1.026	12.44	10.28	.33	.62	.23	.98	82.62	2.67	4.98	1.85	7.88	7.02	.90	.63	.08	.19	70.00	8.89	21.10	222	.85	200					
Av....	1,216	1.026	12.18	9.94	.45	.64	.23	.92	81.52	3.73	5.23	1.94	7.58	6.77	.94	.66	.07	.21	70.41	7.76	21.83	265	.88	126	18.00	1.06	2.92	.08	2.74
Feb. 8	1,530	1.016	8.90	7.08	.44	.60	.15	.63	79.53	4.95	6.75	1.69	7.08	4.00	.59	.35	.06	.18	59.33	10.17	30.50	275	.65	28					
9	1,920	1.014	7.22	5.39	.41	.59	.16	.67	74.65	5.68	8.17	2.22	9.28	5.64	.51	.28	.04	.19	54.90	7.84	37.26	238	.67	69					
10	1,690	1.010	4.99	3.12	.18	.35	.12	1.22	62.50	3.61	7.02	2.41	24.46	3.35	.35	.15	.04	.16	42.85	11.40	45.75	81	.62	35					
11	2,080	1.013	6.97	4.66	.54	.76	.17	.84	66.86	7.74	10.90	2.44	12.06	5.18	.61	.28	.05	.28	45.90	8.20	45.90	250	.86	58	155.00	11.12	20.69	.25	1.86
12	1,490	1.013	4.95	3.13	.31	.60	.14	.77	63.26	6.26	12.10	2.83	15.55	4.16	.43	.20	.05	.18	46.50	11.65	41.85	155	.56	41					
13	1,770	1.013	6.18	3.70	.30	.57	.15	1.46	59.88	4.85	9.22	2.43	23.62	4.88	.44	.24	.03	.17	54.53	6.82	38.65	135	.50	9					
14	1,440	1.015	4.81	3.13	.47	.47	.12	.62	65.10	9.77	9.77	2.47	12.89	3.02	.38	.22	.02	.14	57.90	5.26	36.84	179	.64	21					
Av....	1,703	1.013	6.29	4.32	.38	.56	.14	.89	67.39	6.12	9.13	2.35	14.99	4.32	.47	.24	.04	.19	51.70	8.76	39.53	187	.64	37	22.14	1.59	2.95	.25	1.86
Feb. 15–16	2,460	1.020	9.14	7.25	.49	.59	.25	.56	79.35	5.33	6.46	2.73	6.13	5.26	.83	.51	.06	.26	61.46	7.23	31.31	204	.63	50					
17–18	2,150	1.028	11.12	8.82	.41	.61	.23	1.05	79.30	3.69	5.41	2.16	9.44	7.02	.89	.59	.05	.25	66.31	5.62	28.07	138	.76	33	137.50	8.26	14.49	.10	1.75
19	1,840	1.020	11.76	9.88	.38	.68	.22	.60	84.02	3.23	5.78	1.87	5.10	6.90	.95	.58	.08	.29	61.05	8.42	30.53	254	.85	150					
20–21	2,780	1.021	11.87	9.44	.43	.66	.25	1.09	79.51	3.62	5.59	2.10	9.18	5.45	1.06	.62	.06	.38	58.48	5.66	35.86	273	.89	83					
22–23	1,940	1.030	12.69	10.70	.46	.61	.25	.67	84.31	3.63	4.81	1.97	5.28	5.98	.95	.62	.08	.25	65.27	8.42	26.31	246	.86	100					
24–25	2,770	1.021	11.01	9.01	.44	.64	.23	.69	81.86	3.99	5.81	2.08	6.28	6.06	.87	.57	.07	.23	65.52	8.05	26.43	222	.71	83					
28	1,380	1.026	12.69	10.48	.44	.58	.24	.95	82.59	3.47	4.57	1.89	7.48	7.54	1.07	.68	.07	.32	63.56	6.54	29.90	225	.80	36	113.00	7.25	12.65	.08	1.68
27–28	2,200	1.030	12.30	10.08	.36	.64	.25	.97	81.96	2.93	5.20	2.03	7.88	6.70	.93	.59	.07	.27	63.45	7.53	29.02	243	.95	83					
Av....	1,251	1.024	11.57	9.46	.43	62	.24	.82	81.61	3.73	5.45	2.10	7.09	6.36	.94	.59	.07	.28	63.14	7.18	29.68	223	.81	77	17.89	1.10	1.94	.09	1.72

Mar. 1-2	2,250	1.026	12.17	10.00	.47	.68	.24	.78	82.17	3.86	5.59	1.97	6.41	5.85	.91	.59	.07	.25	64.82	7.69	27.49	285	.90	71	131.50	7.71	19.29	.08	2.50
3-4	2,850	1.021	10.89	9.06	.38	.54	.26	.65	83.20	3.49	4.96	2.39	5.96	6.46	.90	.58	.06	.26	64.45	6.67	28.88	234	.84	55					
5	1,810	1.023	14.05	11.38	.42	.75	.30	1.20	81.00	2.99	5.34	2.13	8.54	9.18	1.03	.73	.06	.24	70.87	5.83	23.30	239	.97	108					
6-7	3,180	1.022	13.05	10.82	.47	.70	.28	.78	82.91	3.60	5.36	2.15	5.98	7.50	1.00	.68	.06	.26	68.00	6.00	26.00	242	.84	62					
Av....	1,441	1.023	12.54	10.31	.44	.67	.27	.85	82.32	3.48	5.31	2.13	6.72	7.25	.96	.64	.06	.25	67.04	6.55	26.41	250	.89	74	18.78	1.10	2.75	.08	2.50
Mar. 8-9	1,900	1.030	11.85	9.74	.55	.66	.27	.63	82.20	4.64	5.57	2.27	5.32	5.35	.97	.62	.05	.30	63.90	5.16	30.94	324	.93	63	213.00	13.05	40.98	.14	3.14
10-11	3,760	1.019	13.12	10.38	.52	.76	.24	1.22	79.11	3.96	5.80	1.83	9.30	7.33	1.06	.67	.07	.32	63.20	6.65	30.15	285	1.14	167					
12	1,670	1.021	12.82	10.44	.54	.63	.26	.95	81.45	4.21	4.91	2.03	7.40	7.01	1.15	.69	.06	.40	60.00	5.22	34.78	307	1.01	35					
13-14	3,280	1.021	12.20	9.76	.46	.66	.24	1.08	80.00	3.77	5.40	1.97	8.86	6.93	.97	.60	.05	.32	61.84	5.16	33.00	240	.84	45					
15	1,300	1.029	12.60	10.61	.41	.64	.23	.71	84.20	3.25	5.08	1.83	5.64	6.53	1.06	.68	.05	.33	64.15	4.72	31.13	237	.75	31	38.50	6.26	......	.49	.....
Av....	1,476	1.024	12.52	10.19	.49	.67	.25	.92	81.39	3.97	5.35	1.98	7.30	6.63	1.04	.65	.06	.33	62.62	5.38	32.00	279	.93	68	31.43	2.41	5.85	.31	3.14

Analytical table in full—Continued.

Subject 6.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		*Gms.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gms.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Oct. 20	1,190	1.022	13.89	11.59	0.47	0.62	0.21	1.00	83.44	3.38	4.46	1.51	7.20	6.30	0.98	0.73	0.08	0.17	74.49	8.16	17.35	408	0.98	100					
21	1,560	1.020	13.41	10.81	.37	.64	.22	1.37	80.61	2.75	4.77	1.64	10.31	6.92	.97	.66	.08	.22	68.04	8.24	22.68	203	1.01	50	42.50	2.12	14.13	0.05	6.66
22	1,100	1,024	13.55	11.38	.50	.60	.22	.85	83.99	3.69	4.42	1.62	6.27	5.04	1.23	.96	.08	.19	78.05	6.50	15.45	498	.97	28					
Av....	1,283	1.022	13.62	11.26	.45	.62	.22	1.07	83.68	3.27	4.55	1.59	7.89	6.08	1.06	.78	.08	.19	73.53	7.63	18.49	369	.99	59	14.16	.70	4.71	.05	6.66
Oct. 23	1,225	1.025	14.04	11.50	.46	.44	.22	1.42	81.91	3.27	3.13	1.56	10.11	5.99	1.38	1.12	.06	.20	81.16	4.34	14.50	428	1.06	17					
24	1,770	1.019	13.88	11.41	.45	.54	.19	1.29	82.21	3.24	3.89	1.36	9.29	6.74	1.13	.88	.07	.17	77.88	6.20	15.04	334	1.03	9					
25	2,500	1.015	15.00	12.83	.27	.58	.21	1.11	85.55	1.76	3.87	1.39	7.40	5.17	.98	.70	.09	.19	71.43	9.18	19.39	385	1.10	111					
26	1,030	1.026	12.92	10.31	.40	.55	.19	1.47	79.82	3.09	4.25	1.47	11.37	4.28	1.07	.79	.07	.21	73.84	6.54	19.62	393	.91	87	85.00	4.25	28.27	.05	6.65
27	1,390	1.021	13.44	11.32	.41	.57	.21	.93	84.22	3.05	4.24	1.56	6.91	5.13	.89	.66	.09	.15	74.16	10.11	16.85	312	.88	45					
28	1,300	1.023	12.48	9.00	1.70	.62	.17	.99	72.11	13.62	4.96	1.36	7.93	5.53	.86	.64	.07	.15	74.42	8.14	17.44	111	.85	33					
29	1,460	1.019	13.48	10.14	.47	.60	.19	1.08	81.25	3.75	4.81	1.52	8.65	5.98	.79	.58	.08	.12	73.42	12.75	15.19	351	.88	56					
30	1,420	1.019	11.16	9.22	.34	.56	.17	.87	82.61	3.04	5.01	1.52	7.78	5.98	.83	.58	.08	.17	69.88	9.64	20.48	270	.90	23	126.00	6.04	32.00	.12	5.50
Oct. 31 Nov. 1	3,000	1.022	12.69	10.42	.47	.56	.18	1.06	82.11	3.70	4.41	1.42	8.35	7.29	.93	.66	.09	.18	70.97	9.67	19.35	390	1.03	21					
Av....	1,510	1,021	13.12	10.68	.55	.56	.19	1.14	81.31	4.28	4.28	1.46	8.64	5.79	.98	.73	.08	.17	74.13	8.51	17.54	330	.96	45	21.10	1.03	6.03	.08	6.08
Nov. 2	1,070	1.028	12.44	10.43	.48	.60	.22	.71	83.84	3.85	4.82	1.76	5.71	5.40	.99	.74	.08	.17	74.75	8.08	17.17	387	1.06	91					
3	1,470	1.021	13.26	10.91	.42	.62	.20	1.11	82.27	3.16	4.67	1.51	8.37	6.43	.92	.44	.25	.23	47.82	27.17	25.00	345	.97	63					
4	935	1.028	11.04	8.83	.23	.61	.19	1.18	79.98	2.08	5.52	1.72	10.68	4.64	.78	.49	.06	.23	62.82	7.69	29.49	168	.84	77					
5	955	1.024	11.91	9.50	.40	.59	.16	1.26	79.76	3.36	4.95	1.34	10.58	3.20	.91	.58	.09	.24	63.73	9.89	26.37	246	.68	71	109.50	5.16	21.05	.06	4.07
6	1,020	1.022	11.15	9.02	.34	.56	.17	1.06	80.89	3.04	5.03	1.52	9.51	4.14	.88	.59	.08	.21	67.05	9.96	23.86	285	.74	33					
7–8	2,380	1.023	12.06	9.76	.38	.51	.20	1.21	80.92	3.15	4.22	1.65	10.03	5.49	.87	.63	.08	.16	72.41	9.19	18.39	264	.83	91					
Av....	1,118	1.024	11.97	9.74	.37	.58	.19	1.09	81.27	3.11	4.87	1.58	9.14	4.88	.89	.58	.07	.21	64.76	11.99	23.38	282	.85	71	15.64	.73	3.00	.06	4.07

Nov. 9	1,130	1.021	10.38	8.33	.39	.52	.16	.98	80.24	3.76	5.01	1.54	9.44	6.35	.77	.53	.08	.16	68.83	10.39	20.78	282	.82	143					
10–11	2,690	1.019	10.10	8.20	.44	.54	.16	.76	81.19	4.36	5.35	1.58	7.52	4.77	.77	.42	.16	.20	54.55	20.78	25.98	312	.87	50	131.00	6.46	27.73	.08	4.29
12–13	1,980	1.028	10.92	8.93	.40	.60	.19	.80	81.77	3.66	5.49	1.74	7.32	5.53	.90	.56	.10	.24	62.22	11.11	26.66	321	.87	83					
14–15	3,025	1.020	11.45	9.55	.35	.54	.20	.81	83.40	3.05	4.71	1.74	7.07	7.03	.86	.59	.16	.11	68.60	18.60	12.77	221	.87	71					
16–17	2,410	1.024	12.36	10.11	.45	.53	.21	1.06	81.86	3.64	4.29	1.70	8.57	5.94	.91	.65	.10	.16	71.43	10.99	17.58	384	.92	71					
18–19	2,450	1.025	12.08	9.76	.31	.51	.23	1.27	80.80	2.56	4.22	1.90	10.51	6.21	.88	.61	.09	.18	69.32	10.23	20.45	273	.86	33	118.00	4.74	23.30	.06	4.91
20, 22	2,890	1.024	13.88	11.46	.51	.54	.21	1.16	82.50	3.67	3.89	1.51	8.36	6.75	.97	.66	09	.22	68.04	9.27	22.68	426	.76	33					
Av....	1,275	1.023	11.59	9.48	.41	.54	.19	.98	81.68	3.53	4.71	1.67	8.39	6.08	.87	.56	.11	.18	66.14	13.05	20.98	317	.85	69	19.15	.86	3.92	.07	4.60
Nov. 23–24	2,190	1.024	12.78	10.75	.38	.53	.21	.91	84.12	2.97	4.14	1.64	7.08	5.31	.96	.66	.10	.20	68.75	10.42	20.83	324	.83	33					
25, 27	2,550	1.025	13.95	11.90	.40	.55	.24	.86	85.30	2.86	3.94	1.72	6.15	7.33	1.07	.74	.08	.25	69.16	7.46	23.37	351	1.00	29	103.00	4.88	21.20	.06	4.35
28–29	3,210	1.022	14.05	11.58	.42	.58	.22	1.25	82.42	2.98	4.12	1.56	8.90	8.91	1.04	.66	.07	.32	63.46	6.73	30.77	302	.86	33					
Nov. 30, Dec. 1	2,525	1.027	14.43	12.04	.38	.62	.26	1.13	83.43	2.63	4.30	1.80	7.84	6.30	1.11	.75	.11	.25	67.54	9.91	22.55	351	.99	25					
Dec. 2–3	3,110	1.022	12.63	10.00	.42	.54	.22	1.45	79.20	3.32	4.27	1.74	11.47	7.00	.98	.66	.06	.26	67.34	6.12	26.54	384	1.06	42	234.00	11.40	47.95	.12	4.21
4	1,145	1.027	12.93	10.54	.53	.55	.20	1.11	81.60	4.10	4.25	1.52	8.53	5.89	1.03	.66	.09	.28	64.04	8.73	27.23	468	1.02	42					
5–6	3,010	1.022	13.10	10.89	.40	.56	.23	1.02	83.14	3.05	4.27	1.75	7.79	7.31	.99	.67	.04	.28	67.72	4.04	28.24	337	.95	100					
Av....	1,365	1.024	13.41	11.10	.42	.56	.23	1.10	82.74	3.13	4.18	1.68	8.25	6.86	1.02	.69	.08	.26	66.85	7.63	25.65	359	.96	43	26.00	1.25	5.32	.09	4.28
Dec. 7–8	3,580	1.020	13.17	10.82	.33	.56	.21	1.25	82.17	2.50	4.25	1.59	9.48	7.95	.94	.69	.09	.16	73.40	9.58	17.02	272	.88	14					
9–10	4,300	1.019	14.80	12.46	.48	.67	.26	.93	84.20	3.24	4.53	1.74	6.29	8.13	1.19	.83	.10	.26	69.75	8.46	21.79	482	1.33	Tr.					
11	1,050	1.031	13.20	10.87	.36	.71	.24	1.02	82.40	2.73	5.34	1.82	7.71	6.57	1.13	.80	.09	.24	70.80	7.96	21.24	465	.97	167	145.00	8.53	29.29	.08	3.43
12–13	2,430	1.028	13.38	11.19	.33	.56	.22	1.08	83.64	2.46	4.18	1.65	8.07	7.29	.93	.71	.02	.20	76.33	2.15	21.52	306	.99	29					
14–15	2,550	1.025	12.93	10.73	.40	.57	.20	1.03	82.99	3.09	4.40	1.54	7.97	6.75	.98	.70	.09	.19	71.42	9.18	19.40	339	.90	63					
16–17	2,350	1.027	14.37	12.19	.31	.63	.25	.99	84.84	2.15	4.38	1.74	6.89	6.08	1.07	.80	.09	.18	74.74	8.43	16.83	399	.96	14	89.50	4.97	9.39	.06	1.91
18	1,840	1.019	15.31	13.10	.43	.60	.25	.93	85.58	2.80	3.92	1.63	6.07	5.13	1.10	.78	.08	.24	70.90	7.27	21.83	413	1.09	18					
Av....	1,508	1.024	13.88	11.62	.36	.61	.23	1.03	83.69	2.71	4.43	1.69	7.49	6.84	1.05	.76	.08	.21	72.48	7.58	19.95	382	1.02	43	19.54	1.12	3.22	.07	2.67
Jan. 4–5	2,700	1.023	12.38	10.06	.41	.54	.21	1.16	81.26	3.31	4.36	1.70	9.37	7.60	.92	.66	.09	.17	71.74	9.78	18.48	360	1.02	71					
6–7	3,125	1.024	13.68	11.42	.39	.60	.24	1.03	83.49	2.85	4.38	1.75	7.53	9.04	1.05	.73	.09	.23	69.53	8.57	21.90	306	.95	40					
8	1,300	1.028	13.50	11.09	.43	.66	.23	1.09	82.15	3.18	4.89	1.70	8.08	7.92	1.16	.80	.07	.29	68.96	6.04	25.00	464	1.25	31	140.50	7.12	29.50	.07	4.20
9–10	3,120	1.022	13.95	11.67	.43	.61	.23	1.01	83.66	3.08	4.37	1.65	7.24	8.56	1.06	.73	.08	.25	68.86	7.55	23.59	359	.99	166					
11–12	2,840	1.023	12.60	10.34	.34	.54	.24	1.14	82.06	2.70	4.29	1.90	9.05	6.94	.96	.69	.07	.20	71.88	7.29	20.83	330	1.02	72					
13–14	3,400	1.023	13.92	11.51	.39	.64	.25	1.13	82.67	2.80	4.60	1.80	8.13	9.18	1.03	.72	.07	.24	69.98	6.79	23.23	388	1.12	100	195.50	9.95	38.10	.10	3.90
15	2,050	1.020	13.71	11.58	.35	.57	.23	.98	84.46	2.55	4.16	1.68	7.15	8.00	1.09	.77	.09	.23	70.65	8.25	21.10	353	1.07	32					
16–17	3,110	1.021	12.64	10.90	.31	.55	.19	.69	86.24	2.45	4.35	1.50	5.46	6.56	1.00	.74	.03	.23	74.00	3.00	23.00	345	1.01	231					
Av....	1,546	1.023	13.29	11.07	.38	.59	.23	1.02	83.25	2.86	4.42	1.71	7.75	7.98	1.03	.73	.07	.23	70.70	7.16	22.14	363	1.05	93	24.00	1.22	4.82	.08	4.05
Jan. 18–19	2,460	1.026	12.87	10.98	.35	.58	.23	.73	85.32	2.72	4.50	1.79	5.67	7.44	.94	.70	.06	.18	74.52	6.38	19.10	390	1.15	167					
20–21	2,880	1.023	12.69	10.57	.32	.58	.21	1.01	83.30	2.52	4.56	1.65	7.97	7.24	.99	.70	.07	.22	70.73	7.07	22.20	276	.96	77	166.50	8.73	37.80	.09	4.34
22	1,190	1.030	13.29	11.23	.26	.64	.24	.92	84.50	1.95	4.83	1.80	6.92	7.81	.97	.72	.07	.18	74.25	7.22	18.53	282	.98	11					
23–24	3,400	1.022	14.42	12.08	.38	.60	.25	1.11	83.77	2.64	4.16	1.73	7.70	8.21	1.11	.78	.08	.25	70.30	7.20	22.50	377	1.04	13					
25–26	2,560	1.027	14.07	11.87	.34	.61	.23	1.02	84.37	2.42	4.33	1.63	7.25	7.11	1.12	.81	.07	.24	72.35	6.25	21.40	348	1.11	89					
27–28	3,260	1.019	13.00	11.21	.34	.54	.22	.69	86.22	2.62	4.15	1.69	5.32	6.90	.96	.68	.08	.20	70.80	8.33	20.87	258	.93	50	143.50	7.65	28.40	.08	3.71
29	1,310	1.025	13.04	10.72	.43	.56	.22	1.11	82.20	3.30	4.30	1.68	8.52	7.42	1.02	.76	.05	.21	74.50	4.90	20.60	396	1.05	55					
30–31	2,750	1.022	12.17	10.21	.40	.50	.19	.87	83.92	3.28	4.10	1.56	7.14	6.12	.86	.64	.05	.17	74.45	5.81	19.74	297	.87	45					
Av....	1,415	1.024	13.19	11.11	.35	.58	.22	.93	84.20	2.68	4.37	1.69	7.06	7.28	.99	.72	.07	.20	73.13	6.64	20.62	328	1.01	63	22.14	1.17	4.72	.08	4.03

Analytical table in full—Continued.

Subject 6—Continued.

Date.	Urine. Volume.	Specific gravity.	Urine nitrogen. Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Per cent of total nitrogen. Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Urine sulphur. Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Per cent of total sulphur. Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Feces. Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N}}$.	$\frac{\text{Feces fat}}{\text{Feces N}}$.
	c. c.		*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*Gms.*	*P. c*	*P. c.*	*P. c.*	*P. c.*	*P. c.*	*Gms.*	*Gms.*	*Gm.*	*Gm.*	*Gm.*	*P. c.*	*P. c.*	*P. c.*		*Gms.*		*Gms.*	*Gms.*	*Gms.*		
Feb. 1-2	2,000	1.031	13.17	11.07	0.39	0.59	0.22	0.90	84.08	2.94	4.48	1.69	6.83	6.80	1.00	0.72	0.08	0.20	72.00	8.00	20.00	384	1.03	62					
3-4	3,370	1.021	13.58	11.41	.45	.63	.23	.86	84.10	3.31	4.64	1.69	6.26	8.70	.99	.70	.09	.20	70.70	9.09	20.21	335	.95	20					
5	1,360	1.027	13.77	11.32	.38	.66	.26	1.15	82.12	2.76	4.89	1.88	8.35	8.73	1.16	.84	.12	.20	72.40	10.35	17.25	387	1.02	77	210.50	10.65	12.95	0.11	1.22
6-7	3,020	1.021	11.40	9.33	.27	.52	.20	1.08	81.85	2.37	4.56	1.75	9.47	7.16	.82	.57	.07	.18	69.51	8.55	21.94	259	.81	55					
Av.....	1,393	1.025	12.98	10.78	.37	.60	.23	1.00	83.04	2.85	4.64	1.75	7.73	7.85	.99	.71	.09	.19	71.15	8.99	19.85	341	.95	54	30.07	1.52	1.85	.11	1.22
Feb. 8	1,730	1.014	8.68	6.95	.35	.54	.15	.69	79.98	4.07	6.22	1.73	8.00	5.24	.63	.38	.05	.20	60.30	7.94	31.76	300	.80	23					
9	1,300	1.018	7.14	5.32	.29	.56	.18	.79	74.50	4.06	7.85	2.52	11.07	5.13	.53	.27	.08	.18	50.94	15.10	33.96	216	.71	41					
10	1,230	1.016	7.82	5.79	.33	.49	.15	1.06	74.03	4.22	6.27	1.92	13.56	2.51	.58	.32	.07	.19	55.20	12.06	32.74	213	.61	55					
11	2,010	1.012	6.43	4.95	.35	.50	.13	.50	77.00	5.44	7.77	2.02	7.77	3.44	.52	.26	.04	.22	50.00	7.70	42.30	209	.64	37	128.00	7.80	29.74	.17	3.81
12	1,760	1.013	5.60	4.09	.28	.54	.13	.56	73.03	5.00	9.65	2.32	10.00	3.85	.54	.24	.05	.25	44.45	9.25	46.30	197	.68	6					
13	1,560	1.014	4.93	3.51	.30	.50	.13	.49	71.20	6.09	10.14	2.63	9.94	4.22	.41	.23	.04	.14	56.10	9.75	34.15	231	.65	9					
14	1,280	1.013	4.38	2.83	.32	.41	.10	.72	64.61	7.30	9.36	2.28	16.45	3.61	.34	.19	.03	.12	55.88	8.82	35.30	192	.57	21					
Av.....	1,553	1.014	6.43	4.77	.32	.50	.14	.69	73.48	5.17	8.18	2.20	10.97	4.00	.51	.27	.05	.19	53.27	10.09	36.64	222	.67	28	18.28	1.11	4.25	.17	3.81
Feb. 15-16	2,270	1.025	10.07	8.34	.30	.53	.24	.66	82.83	2.98	5.26	2.38	6.55	6.62	.85	.54	.05	.26	63.55	5.88	30.57	279	.92	25					
17-18	3,010	1.023	12.95	10.70	.36	.55	.22	1.12	82.62	2.87	4.25	1.70	8.67	8.31	.99	.67	.07	.25	67.70	7.07	25.23	277	.93	55					
19	1,360	1.024	13.85	11.69	.48	.62	.20	.86	84.40	3.47	4.48	1.45	6.20	6.44	1.10	.74	.12	.24	67.27	10.91	21.82	435	.92	25	85.00	4.57	16.76	.05	3.67
20-21	2,800	1.021	12.29	10.12	.32	.53	.22	1.10	82.33	2.60	4.32	1.79	8.96	6.16	.88	.57	.07	.24	64.78	7.96	27.26	261	.80	62					
22-23	3,210	1.022	14.50	12.01	.44	.69	.24	1.12	82.84	3.03	4.74	1.65	7.72	7.17	1.04	.75	.08	.21	72.11	7.69	20.20	366	1.04	20					
24-25	3,350	1.022	13.32	11.47	.35	.65	.23	.62	86.12	2.63	4.88	1.72	4.65	7.28	1.05	.69	.08	.28	65.70	7.62	26.68	295	.94	17	139.50	7.48	18.52	.07	2.48
26	1,360	1.026	14.04	11.79	.38	.58	.23	1.06	83.97	2.71	4.13	1.64	7.55	6.93	1.15	.79	.08	.28	68.69	6.96	24.35	348	.89	41					
27-28	3,240	1.022	12.90	10.88	.32	.66	.22	.82	84.42	2.48	5.04	1.70	6.36	8.40	.97	.63	.08	.26	64.95	8.25	26.80	295	.93	41					
Av.....	1,471	1.023	12.99	10.87	.37	.60	.23	.92	83.69	2.84	4.64	1.75	7.08	7.16	1.00	.67	.08	.25	66.84	7.79	25.37	319	.92	36	16.03	.86	2.52	.06	3.08

Mar. 1-2	2,840	1.023	11.67	9.71	.49	.64	.20	.63	83.20	4.20	5.48	1.72	5.40	7.29	.92	.61	.08	.23	66.30	8.70	25.00	408	.88	71					
3-4	2,900	1.023	12.30	10.49	.31	.52	.23	.75	85.28	2.52	4.23	1.87	6.10	7.34	.96	.65	.08	.23	67.72	8.33	23.95	294	.96	25					
5	1,510	1.027	15.04	12.56	.34	.66	.27	1.21	83.51	2.26	4.39	1.79	8.05	9.38	1.20	.88	.09	.23	73.30	7.50	19.20	359	1.08	18	185.00	9.85	37.91	.11	3.85
6-7	1,590	1.029	10.74	9.04	.29	.64	.20	.58	84.08	2.70	5.96	1.86	5.40	3.55	.78	.53	.04	.21	67.95	5.12	26.93	258	.83	63					
Av.....	1,263	1.025	12.44	10.45	.36	.61	.23	.79	82.02	2.92	5.01	1.81	6.26	6.89	.96	.67	.07	.22	68.82	7.21	23.77	329	.94	44	26.43	1.40	5.41	.11	3.85
Mar. 8-9	2,850	1.023	12.69	10.61	.37	.63	.21	.87	83.61	2.91	4.96	1.66	6.86	6.93	1.02	.67	.11	.24	65.70	10.78	23.52	348	1.00	50					
10-11	2,959	1.021	12.17	9.93	.36	.61	.22	1.05	81.59	2.96	5.01	1.81	8.63	6.98	.95	.63	.06	.26	66.32	6.31	27.37	342	.94	41					
12	1,360	1.024	12.21	9.83	.40	.56	.20	1.22	80.51	3.28	4.58	1.64	9.99	6.83	1.04	.70	.07	.27	67.30	6.73	25.97	448	.99	41	81.00	4.38	12.95	.05	2.96
13-14	2,905	1.021	10.86	8.88	.36	.56	.19	.87	81.78	3.31	5.16	1.75	8.00	7.20	.86	.54	.05	.27	62.80	5.80	31.40	285	.87	50					
15	1,120	1.030	11.96	9.67	.32	.64	.22	1.11	80.86	2.68	5.34	1.84	9.28	7.38	1.05	.70	.05	.30	66.66	4.76	28.58	258	.81	17	80.00	4.40	......	.37	.....
Av.....	1,398	1.024	11.98	9.78	.36	.60	.21	1.02	81.67	3.03	5.01	1.75	8.55	7.06	.98	.65	.07	.27	65.76	6.87	27.37	336	.92	39	20.12	1.09	1.85	.21	2.96

Analytical table in full—Continued.

Subject 7.

Date.	Urine.																								Feces.				
			Urine nitrogen.												Urine sulphur.														
									Per cent of total nitrogen.										Per cent of total sulphur.										
	Volume.	Specific gravity.	Total (N_2).	Urea (N_2).	Ammonia (N_2).	Kreatinin (N_2).	Uric acid (N_2).	Rest (N_2).	Urea.	Ammonia.	Kreatinin.	Uric acid.	Rest.	Chlorides as Cl.	Total (S).	Inorganic (S).	Ethereal (S).	Neutral (S).	Inorganic.	Ethereal.	Neutral.	Acidity (c. c. $\frac{n}{10}$).	Phosphates (P).	Indican (Fehling's=100).	Dry weight.	Nitrogen (N_2).	Fat.	$\frac{\text{Feces N}}{\text{Urine N.}}$	$\frac{\text{Feces fat}}{\text{Feces N.}}$
	c. c.		Gms.	Gms.	Gm.	Gm.	Gm.	Gms.	P. c.	P. c.	P. c.	P. c.	P. c.	Gms.	Gms.	Gm.	Gm.	Gm.	P. c.	P. c	P. c.		Gms.		Gms.	Gms.	Gms.		
Oct. 20	0.960	1.020	14.31	11.37	0.63	0.85	0.24	1.22	79.46	4.40	5.94	1.67	8.52	4.14	1.10	0.83	0.09	0.18	75.45	8.18	16.36	420	0.98	71	32.90	1.70	7.40	0.03	4.35
21	1,400	1.020	14.82	11.80	.56	.86	.26	1.34	79.62	3.77	5.80	1.75	9.05	5.22	.98	.69	.09	.20	70.41	9.18	20.40	150	1.18	33					
22	1,420	1.022	13.89	11.25	.54	.87	.28	.95	81.00	3.88	6.26	2.01	6.85	4.14	1.10	.72	.09	.28	65.45	8.18	25.46	195	.49	38					
Av....	1,260	1.021	14.34	11.47	.58	.86	.26	1.17	80.03	4.02	6.00	1.81	8.14	4.50	1.06	.75	.09	.22	70.44	8.51	20.74	255	.88	47	10.97	.56	2.46	.03	4.35
Oct. 23	945	1.027	14.70	11.84	.55	.80	.27	1.24	80.57	3.74	5.44	1.83	8.43	4.37	1.05	.74	.09	.22	70.48	8.57	20.98	248	.61	17	65.60	3.36	14.82	.03	4.41
24	1,200	1.025	15.44	12.68	.58	.79	.28	1.11	82.13	3.75	5.11	1.81	7.19	6.03	1.11	.77	.08	.26	69.35	7.21	23.38	150	.36	100					
25	1,140	1.026	16.38	13.52	.61	.84	.29	1.12	82.54	3.72	5.12	1.77	6.85	4.54	1.12	.69	.10	.32	61.60	8.91	28.56	177	.41	50					
26	790	1.031	16.83	13.35	.80	.77	.29	1.62	79.32	4.75	4.58	1.72	9.63	2.93	1.22	.81	.11	.31	66.39	9.10	25.41	276	.31	91					
27	1,100	1.027	20.25	15.04	.80	.84	.29	3.28	74.26	3.95	4.15	1.43	16.19	3.76	1.28	.89	.09	.30	69.52	7.03	23.44	303	.56	83					
28	990	1.032	21.83	18.15	.84	.90	.42	1.52	83.20	3.85	4.12	1.92	6.91	5.00	1.37	.94	.10	.32	68.61	7.30	23.35	408	.90	91					
29	1,180	1.023	21.12	17.76	.69	.85	.36	1.46	84.10	3.27	4.02	1.70	6.91	2.97	1.27	.84	.08	.35	66.13	6.30	27.54	348	.60	63					
30	960	1.035	10.80	8.60	.....	.45	.28	.....	79.63	.....	4.16	2.59	.....	5.43	.....	.....	.....	.....	.....	.....	.....	78	.....	.....	134.00	7.11	24.15	.10	3.40
Oct. 30–Nov. 1	2,475	1.025	18.09	14.50	.73	.73	.37	1.76	80.14	4.04	4.04	2.05	9.73	3.51	1.12	.80	.05	.27	71.43	4.46	24.11	303	.76	154					
Av....	1,178	1.027	17.27	13.94	.70	.77	.31	1.66	80.65	3.88	4.53	1.87	8.98	4.28	1.19	.81	.09	.29	67.94	7.36	24.59	155	.56	81	19.96	1.05	3.90	.06	3.91
Nov. 2	1,245	1.023	14.94	12.00	.59	.66	.42	1.27	80.31	3.95	4.42	2.81	8.50	3.96	1.15	.74	.07	.34	64.34	6.09	29.57	324	.83	111	107.50	6.28	26.35	.07	4.20
3	1,375	1.022	15.93	12.79	.64	.71	.43	1.36	80.27	4.02	4.46	2.70	8.54	4.36	1.09	.72	.10	.27	66.05	9.17	24.71	333	.74	100					
4	1,450	1.020	13.62	10.47	.54	.68	.42	1.51	76.87	3.96	4.99	3.08	11.08	4.36	.91	.59	.08	.24	64.84	8.79	26.37	246	.66	143					
5	1,440	1.020	13.25	9.86	.55	.71	.43	1.70	74.40	4.15	5.36	3.24	12.82	4.01	.97	.67	.07	.24	69.07	7.22	24.71	384	.93	0					
6	1,220	1.020	11.40	8.75	.46	.64	.44	1.11	76.75	4.03	5.61	3.86	9.74	4.09	.81	.59	.07	.15	72.84	8.64	18.52	330	1.04	125					
7–8	2,380	1.023	9.68	7.36	.38	.51	.32	1.11	76.03	3.93	5.27	3.31	11.46	4.01	.80	.47	.16	.18	58.76	20.00	22.50	330	1.06	143					
Av....	1,301	1.021	13.14	10.20	.53	.65	.41	1.34	77.44	4.01	5.02	3.17	10.36	4.13	.95	.63	.09	.24	65.98	9.98	24.39	324	.87	104	15.35	.89	3.76	.07	4.20

Nov. 9	1,415	1.022	12.12	9.27	.50	.67	.32	1.36	76.47	4.12	5.53	2.64	11.22	6.75	.87	.71	.03	.14	81.61	3.44	16.09	372	1.24	95					
10–11	2,450	1.021	11.58	9.00	.45	.65	.33	1.15	77.71	3.89	5.61	2.85	9.93	6.45	.71	.42	.08	.20	59.15	11.27	28.17	300	1.13	100					
12–13	2,175	1.020	8.97	6.63	.42	.62	.24	1.06	73.91	4.68	6.91	2.68	11.82	4.05	.68	.43	.09	.17	63.24	13.23	25.00	336	.74	83	114.00	6.83	27.05	.09	3.96
14–15	2,835	1.020	10.31	8.17	.44	.60	.25	.85	79.14	4.26	5.81	2.42	8.43	6.43	.74	.49	.08	.17	66.21	10.85	22.96	282	.98	45					
16–17	2,775	1.018	10.17	7.94	.46	.59	.25	.93	78.07	4.52	5.80	2.45	9.14	4.68	.76	.50	.10	.17	65.79	13.16	22.37	279	1.07	95					
18–19	2,600	1.018	7.89	5.84	.35	.61	.22	.87	74.02	4.43	7.73	2.78	10.03	5.04	.63	.34	.09	.20	53.97	14.29	31.74	87	.64	42	207.00	11.92	42.00	.23	3.52
20–22	1,650	1.023	7.59	6.11	.37	.49	.15	.47	80.50	4.87	6.45	1.96	6.19	3.51	.50	.34	.07	.09	68.00	14.00	18.00	96	.67	71					
Av....	1,222	1.020	9.80	7.56	.44	.60	.25	.96	77.11	4.39	6.26	2.54	9.68	5.26	.69	.46	.08	.16	65.42	11.61	22.05	250	.92	76	24.69	1.44	5.31	.16	3.74
Nov. 23–24	2,200	1.017	6.51	4.80	.39	.41	.14	.77	73.73	5.99	6.29	2.15	11.83	3.69	.52	.30	.05	.17	57.69	9.61	32.69	144	.53	20					
25, 27	2,765	1.021	9.84	7.86	.36	.59	.21	.82	79.88	3.65	5.99	2.13	8.33	6.57	.77	.47	.16	.14	61.04	20.76	18.17	159	.79	25	165.00	8.38	36.50	.14	4.39
28–29	3,115	1.020	12.20	9.48	.48	.61	.22	1.41	77.71	3.93	5.00	1.80	11.56	5.75	.92	.62	.08	.23	67.39	8.69	25.00	260	1.06	91					
Nov. 30–Dec. 1	2,360	1.020	10.86	8.91	.42	.57	.19	.77	82.04	3.87	5.25	1.75	7.09	3.42	.76	.51	.08	.17	67.13	10.50	22.37	279	.78	67					
Dec. 2–3	1,905	1.022	8.40	6.91	.32	.48	.17	.52	82.27	3.81	5.71	2.02	6.19	3.96	.63	.39	.07	.17	61.90	11.10	27.00	198	.62	29	121.50	7.50	26.18	.10	3.49
4	1,050	1.028	10.73	8.71	.37	.61	.15	.89	81.17	3.45	5.68	1.40	8.30	5.94	.82	.58	.02	.22	70.75	2.44	26.81	246	.86	20					
5–6	3,020	1.020	10.96	8.73	.48	.57	.18	1.00	79.64	4.38	5.20	1.65	9.13	5.89	.88	.55	.03	.30	62.50	3.41	34.09	254	.78	100					
Av....	1,263	1.021	9.93	7.91	.40	.55	.18	.88	79.49	4.15	5.59	1.84	8.92	5.03	.76	.49	.07	.20	64.06	9.50	26.59	200	.77	50	22.04	1.22	4.82	.12	3.94
Dec. 7–8	2,460	1.024	13.01	10.65	.48	.67	.23	.98	81.86	3.69	5.14	1.77	7.54	5.13	.96	.62	.11	.23	64.54	11.47	23.99	249	.75	14					
9–10	2,490	1.021	10.11	8.21	.38	.51	.16	.85	81.21	3.77	5.04	1.58	8.40	4.00	.75	.52	.08	.15	69.33	10.67	20.00	258	.75	67	164.50	10.25	39.40	.12	3.84
11	945	1.029	12.27	9.94	.47	.66	.25	.95	81.01	3.83	5.38	2.04	7.74	4.05	.88	.63	.09	.16	71.60	10.20	18.20	366	.94	56					
12–13	3,350	1.022	12.16	9.89	.46	.61	.19	1.01	81.33	3.78	5.02	1.56	8.31	6.88	.87	.59	.10	.18	67.80	11.50	20.70	312	.94	17					
14–15	3,550	1.018	13.13	10.53	.40	.65	.21	1.34	80.18	3.05	4.95	1.60	10.22	5.80	.98	.64	.11	.23	65.35	11.23	23.42	298	.98	19					
16–17	2,830	1.019	10.71	8.78	.36	.60	.17	.80	81.99	3.36	5.60	1.58	7.47	4.46	.82	.55	.08	.19	67.05	9.75	23.20	246	.85	23	135.50	8.59	26.91	.14	3.14
18	1,310	1.023	11.55	9.50	.46	.65	.20	.74	82.25	3.99	5.63	1.73	6.40	7.62	.96	.64	.09	.23	66.65	9.37	23.98	345	.97	17					
Av....	1,411	1.022	11.85	9.64	.43	.62	.20	.95	81.40	3.64	5.25	1.69	8.01	5.42	.89	.59	.09	.19	67.48	10.59	21.93	296	.88	30	25.00	1.57	5.52	.13	3.49

[illegible]